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PAINFUL NODULAR GROWTH OF THE EAR*

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Seven years ago, I read before this association a clinical and histologic description, based on four cases, of a small nodular, painful growth occurring on the rim of the ear.[1] Since then, I have seen eight additional instances of this disorder in private practice, and two in the course of the medical examination of men drafted for service. In 1915, Winkler [2] of Lucerne described what is undoubtedly the same condition under the designation of "chondrodermatitis nodularis chronica helicis." Winkler's article was unknown to me until after the presentation of my paper in 1917, and to him belongs the priority of its description.

With the exception of the report of a case presented by Mitchell [3] before the Chicago Dermatological Society in 1922, and the statement in Sutton's [4] textbook that he and Markley had each seen two cases, I have found no further references to this affection in the literature. The apparent rarity of the condition and the clinical resemblance it may at times bear to epithelioma appear to warrant the recording of additional cases with the results of histologic study, for the purpose of defining more accurately this disorder and establishing its recognition as an entity.

I have observed the following eight cases since the publication of my original paper in 1917:

REPORT OF CASES

CASE 1.—S. A., a man, aged 62, a manufacturer, had a rounded, firm grayish nodule, about 4 mm. in diameter, on the anterolateral surface close to the free border of the helix of the right ear, at about the junction of the ascending and superior portions of the helix. It was firmly attached to the underlying cartilage, and showed a slight central indentation covered by a scale. He complained of

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1. Foerster, O. H.: J. Cutan. Dis. **36**:154 (March) 1918.

2. Winkler, M.: Arch. f. Dermat. u. Syph. **121**:278 (April) 1915.

3. Mitchell, J. H.: Arch. Dermat. & Syph. **7**:132 (Jan.) 1923.

4. Sutton, R. L.: Diseases of the Skin, Ed. 4, St. Louis, C. V. Mosby Company, 1921.

a darting pain, like that of a corn, both spontaneous and on pressure, that prevented him from resting his head on the right side. The lesion had been present without appreciable change for twelve years. There was no history of trauma, chilblains or freezing of the ear. The skin surrounding the lesion and on the rest of the ear was normal in appearance, and the skin in general was of youthful texture and free from pigmentary patches and keratoses.

The patient was referred to me by a surgeon who did not consider the lesion as epitheliomatous and wished to observe the effects of radiotherapy. After one application of the roentgen ray, the pain was much diminished, and after six further treatments the lesion was barely discernible, and pain was absent. One year later, with no treatment in the interim, the nodule rapidly recurred to its original size, and was painful only on pressure. It was then excised, and there was no recurrence five years later.

Microscopic Examination.—The section showed a process of inflammation and degeneration in the cutis, with secondary hypertrophy of the epidermis. The latter showed a pronounced thickening of the rete, from three to six times the thickness observed at the margins of the section. At the center of the lesion, the elongated and widened rete pegs were fused into a broad plaque or nodule. This nodule was surmounted by a dense, parakeratotic scale almost equal in thickness to the rete. Elsewhere there was parakeratosis and hyperkeratosis, gradually reduced laterally to normal proportions. The follicular openings were widened and deepened, and filled with loose scales. The collagen showed some thinning, due to edema, and in the region of most acanthosis the collagen showed degeneration as manifested by altered staining reactions. In the latter area, there was a moderate cellular infiltrate.

In the deeper cutis, the collagen was densely packed and had undergone hyaline degeneration. The surface of the cartilage showed a cellular infiltrate and hyaline degeneration. There were rifts in the tissue, chiefly parallel to the surface, which in some places appeared to be dilated lymph spaces, but of which the larger were probably artefacts. There was a slight increase in the blood vessels of the reticulum below the nodule. There was pronounced degeneration of elastic tissue.

High Power Magnification.—The stratum corneum over the center of the lesion was composed approximately of forty layers of densely compressed parakeratotic and hyperkeratotic cells. It showed a tendency toward splitting and fraying, and as this stratum became thinned peripherally there was less parakeratosis and less compression of the cells. The follicular openings showed loose whorls of corneous cells. The stratum lucidum was absent in most places. The stratum granulosum was composed of from one to three layers of cells in the plaque, and at the margins of from three to seven layers.

The rete was from 4 to 10 cells deep peripherally, and from 10 to 20 cells deep in the plaque. Some of the pegs flanking the nodule were slightly deeper. The suprapapillary portions were from 4 to 8 cells thick. The rete of the nodule showed large, well developed cells with good definition of nuclei, cell walls and intercellular bridges. There were numerous mitoses and vacuolated cells and some intercellular and intracellular edema.

In the papillary layer, the collagen was rarefied by edema, and the capillaries were dilated and showed endothelial proliferation. In some, papillae dilatation of lymph spaces had displaced the other structures. The edema extended throughout the subpapillary layers and invaded the deeper cutis. The collagen was composed of whorls of swollen, poorly stained and poorly defined fibrils mixed with fragmented and degenerated elastic tissue and fibroblasts, and

separated by large clear spaces. The blood vessels were dilated, swollen and numerically increased, and in their vicinity most of the cellular infiltrate was to be found. The latter was made up almost entirely of fibroblasts, except in the proximity of a sebaceous gland, where there was a nodular infiltrate, chiefly of round cells which contained a few endothelioid cells. Staining by the Weigert method showed a pronounced degeneration and fragmentation of the elastic tissue, especially in the upper cutis and in the area of hyaline degeneration.

Case 2.—M. F. L., a man, aged 68, (father of patient in Case 4), a banker, had a rounded, firm, pinkish nodule, about 4 mm. in diameter, on the anterior aspect and close to the free border of the superior portion of the helix above its junction with the ascending helix. The nodule was fused with the cartilage and immovable, had a slightly cupped center filled with thin scales, showed no telangiectases, was tender and spontaneously painful at intervals. It had been present for six months without change in size or appearance, and there was no history of injury, frostbite, or other assignable cause. After three suberythema applications of the roentgen ray, the nodule disappeared and had not recurred nine months later.

Case 3.—H. V. M., a man, aged 27, a merchant, had a rounded, centrally depressed, pinkish nodule of firm consistency, 4.5 mm. in diameter, on the right ear anterior to and below the crown angle and adjacent to the free border of the helix. It had been present for about eight months, was moderately painful at times, and note was made of its presence during an examination for another condition. There was no history of frostbite or injury. Ten months later the lesion had disappeared spontaneously and five years later had not recurred.

Case 4.—H. L., a man, aged 31, a bank cashier (son of patient in Case 2), had a painful, centrally ulcerated nodule on the left ear at about the junction of the ascending and superior portions of the helix, adjacent to the free border. The presence of the lesion had first been observed five months earlier, owing to pain from pressure while the patient was lying on the left side, and about one month following a decompression operation in the right temporal region for a skull fracture. Examination at that time showed a small, tender nodule covered at the center by an adherent scale. When the scale was removed, a fluid "like mucous" appeared. A crust formed later, and on removal disclosed a small defect. When of five months' duration, the nodule was 4.6 mm. in diameter, and had not enlarged in the preceding four months. It was of normal skin color, firm consistency, had sloping sides, and was apparently attached to the cartilage. A central crust covered a punched out ulceration of small pinhead size, with ragged, perpendicular edges and smooth, shiny, moist base. There was no discharge of serum or pus, and crusts formed rapidly. Pain was acute, especially on pressure. The ear had never been frost-bitten; the patient insisted that the lesion had developed in consequence of long continued pressure against a firm pillow. After four suberythema applications of the roentgen-ray at intervals of one week, only a pinpoint area of tenderness remained, and two months later the lesion had disappeared. Three years later there was no recurrence.

Case 5.—J. A., a man, aged 59, a veterinary surgeon, had nodules of practically identical appearance and size in the same location (at about the midpoint of the upper pole and on the border of the helix) on both ears (Fig. 1). The nodules were firm, somewhat oval, elevated, and had rounded sides. The

tops were flattened and showed a shallow central pinhole opening covered by scales. The nodules were somewhat pearly, with a pinkish tint, slightly reddened at the periphery, and were firmly attached to the cartilage at the free border of the helix. The nodules were painful on pressure and spontaneously, and were said to be painless whenever they were free from scales. There had been no discharge, and there had been no change in size or appearance since they had first developed more than one year before. No history of injury or frost-bite was obtained. In this patient, the border of the superior and descending helices of both ears showed several knoblike protuberances and

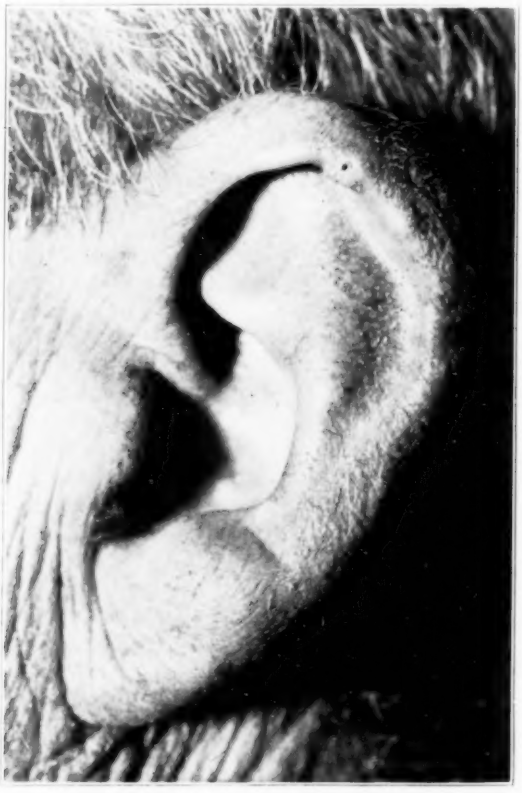

Fig. 1 (Case 5).—Typical elevated nodule.

sharp angulations. The nodules were observed in the course of an examination for a neurodermitis on the neck and extremities, and no treatment was given.

Case 6.—S. S., a man, aged 62, a physician, had a painful nodule of eighteen months' duration on the border of the upper part of the ascending helix of the left ear (Fig. 2). The nodule was circular in outline, almost entirely embedded in the skin, and 4 mm. in diameter. Removal of a dry, crustlike, tightly adherent scale covering about two thirds of the lesion disclosed a central, shallow cupping. The nodule was slightly movable over the cartilage. A sensation as though a thorn were present in the lesion was described. When pressed against a pillow, the nodule was at times so painful as to interfere with

sleep. There was no history of injury, chilblain or freezing of the ear. The nodule was situated anteriorly to an area in which the skin was tightly stretched over, though not adherent, to the underlying cartilage. The patient had elsewhere been given four roentgen-ray treatments four months previously, and the lesion had disappeared, but recurred in two months. The nodule was then excised, but recurred within a month at the edge of the scar. About fifteen months later, the nodule was to all appearances a replica of the original lesion and was excised again.

Microscopic Examination.—The predominating feature was a pronounced acanthosis, in nodule formation, with an underlying chronic inflammatory process extending to the cartilage (Fig. 3). The rete was from six to eight times its normal thickness in the nodule, and from four to five times in the immediate proximity, thinning out gradually to normal at the periphery of the section.

Fig. 2 (Case 6).—Nodule embedded in rim of ear.

There was a pronounced widening and lengthening of the rete pegs adjacent to the nodule. There was a corresponding increase in thickness of the strata granulosum and corneum, especially over a central depression in the nodule, which was lined by a thickened stratum of hyperkeratotic cells and surmounted by a scale of parakeratotic cells. The corium showed a pronounced cellular infiltrate and an inflammatory and edematous reaction in the collagen, with considerable dilatation and proliferation of vascular structures. The collagen took the stain poorly, showing degeneration with considerable basic staining, except below the nodule and peripherally, where there was some normal appearing connective tissue. Directly below the nodule, there was a broad vacuolated space. There was some evidence of degenerated elastic tissue. The inflammation extended directly to the cartilage and involved it. The cellular infiltration tended to group itself near the vessels and about the nodule. The reaction in the corium was not as sharply marginated as in the epidermis, gradually losing itself in the normal tissues laterally.

High Power Magnification.—The scale overlying the nodule was composed of closely compressed parakeratotic cells. The stratum corneum was a hyperkeratotic layer from 8 to 30 cells in thickness over the nodule, and from 2 to 10 cells elsewhere. In places, it was detached in wavy strands. There was an underlying narrow strip of parakeratosis extending the width of the section. The stratum lucidum was not defined. The stratum granulosum consisted of from five to ten layers of well developed cells centrally, which gradually thinned out laterally and blended irregularly with the rete cells. The rete of the nodule measured from 35 to 50 cells in depth, and in the flanking pegs

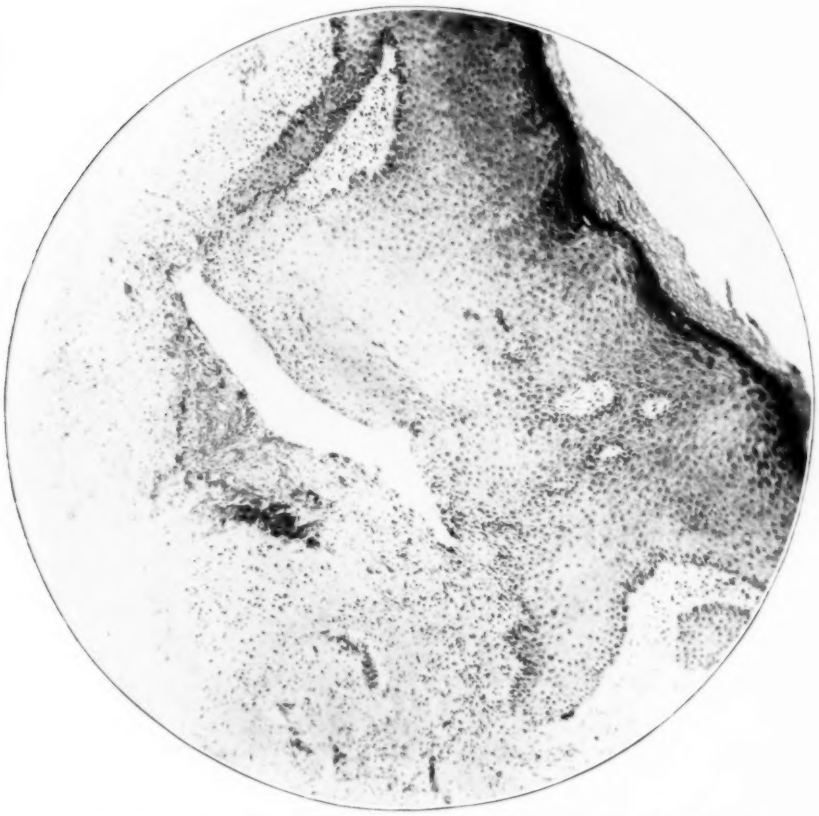

Fig. 3 (Case 6).—Section of nodule under low power magnification.

from 20 to 30 cells. Laterally, in the section the rete was from 6 to 10 cells deep. There was no loss of continuity in the surface layers, and the interpapillary areas were from 6 to 12 cells in thickness. The basal germinating layer was absent directly above the vacuolated zone and was imperfectly formed in the lower left end of the nodule (Fig. 4). In the former area, the basal layer was replaced by an irregular arrangement of more highly differentiated cells and degenerated cells. This picture held true to a lesser degree for the latter area. Snared off pegs of proliferated rete cells showed as islands of epithelium within the corium.

The rete showed well developed cells and numerous mitoses. In the center of the nodule, the nuclei were large and pale, with prominent nucleoli, one or two to the nucleus, and with well defined nuclear membranes, but hazy cell protoplasm, apparently edematous, fusing with the protoplasm of other cells without demarcation of the individual cell outlines. In most of the nodule, however, the cell walls were intact and the protoplasmic bridges or prickles were in evidence. Except for a small area below the nodule and areas laterally, the collagen was edematous and disorganized by a cellular infiltrate and by edema. In this region, there was a circumscribed area of pronounced vascular

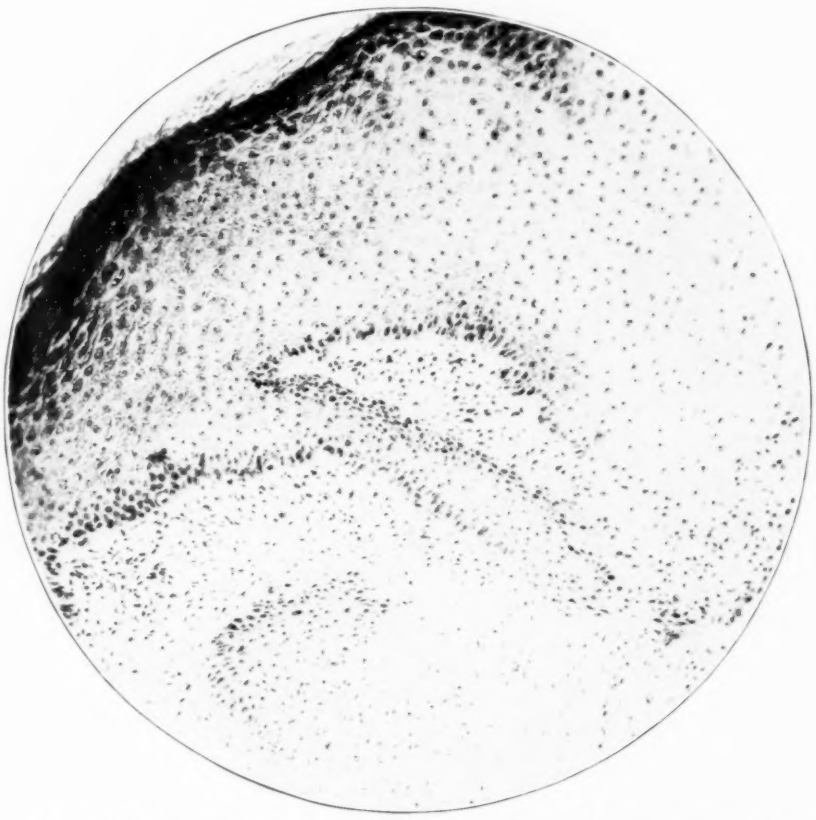

Fig. 4 (Case 6).—Edge of nodule, showing disorganization of basal layer and vascular proliferation.

proliferation (Fig. 4). The infiltrate was composed chiefly of epithelioid cells, although fibroblasts were numerous and predominated in certain areas, and there were some round cells and plasma cells.

In some places, the tissue consisted largely of epithelioid cells in a loose reticulum of edematous collagen fibrils, with numerous associated capillary buds and lymph spaces. The fibroblasts were more numerous peripherally where there was less edema. The papillary layer differed from the subpapillary layer chiefly by the greater amount of edema and epithelioid cells

in the former. The deeper vessels showed thickening and proliferation of their walls. At the cartilaginous margin there were necrosis and hyaline degeneration of both cartilage and collagen, resulting in loss of definition of those tissues. In this necrotic area, there were a few migratory cells. The cartilaginous surface showed scattered epithelioid cells and fibroblasts.

Case 7.—C. H., a man, aged 38, a salesman, had a circular, flat-topped, slightly elevated, firm nodule, 3.5 mm. in diameter, embedded in the free border of the helix of the left ear at the junction of the ascending and superior

Fig. 5 (Case 7).—Section of nodule, showing edge of nodule and cartilage.

portions of the helix. The lesion was grayish, not waxy or translucent, and was covered by a thin, adherent scale. There was no central depression. The nodule was firmly attached to the cartilage, and painful on pressure. A history of injury or frost-bite was not obtained. The lesion had first attracted the patient's notice more than one year previously because of darting pains, like those of a corn, which occurred when the ear was pressed against a pillow. The nodule had elsewhere been given one treatment with radium eight weeks before, and after apparent disappearance, an exact duplicate of the original lesion had recurred within two weeks. It was excised by Dr. W. L. LeCron.

Microscopic Examination.—This section showed a diffuse inflammatory process throughout the cutis, with an appreciable increase in the vascular structures, and hypertrophy of the epidermis. The latter was most pronounced centrally, where there was fusion of rete pegs to form a broad plaque about twelve pegs in length and about three times the normal epidermal thickness (Fig. 5). The surface of this acanthotic area was slightly depressed centrally and covered by a dense scale almost as thick as the epidermal plate, and, with the latter, formed a nodule of about three or four times the thickness of the

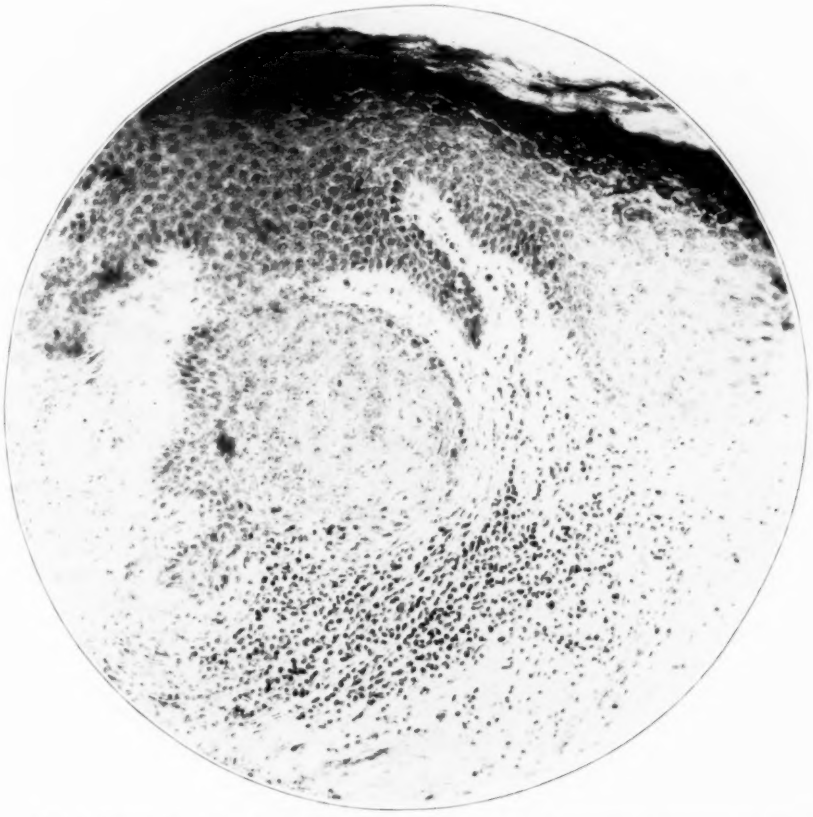

Fig. 6 (Case 7).—An area of cellular infiltrate and vascular change at edge of nodule.

flanking portions of epidermis. The latter were also thicker than normal and showed lengthening and widening of the pegs. The reaction in the corium was edematous, cellular and vascular. There was little normal collagen, it being invaded or displaced by the cellular infiltrate and dilated lymph spaces and blood vessels and rarefied by edema. This process involved the entire corium, and there was an absence of demarcation between the corium and the cartilage, the latter being altered peripherally by inflammation and cellular invasion of fibroblasts and round cells. The cellular infiltrate was more pronounced laterally to the epidermal nodule, and though not distinctly perivascular, it

was associated with the vascular elements. There were several nodular groupings of cells, one of which was quite large, sharply circumscribed and uniformly lymphocytic. The blood vessels in the middle and deep cutis were increased in numbers, hypertrophied and dilated.

High Power Magnification.—Over the depression in the rete, the stratum corneum showed approximately fifty layers of flattened, densely packed cells. Overlying one portion of the nodule was a thick scale of parakeratotic cells. Laterally, the stratum corneum was made up of loosely placed, normally cornified cells in a layer of variable thickness. The follicular openings were widened and deepened and filled with loose scales. The stratum lucidum was absent. The stratum granulosum was composed of from two to seven layers of well developed cells, but below the area of parakeratosis it was entirely absent. The rete cells were well developed, and in some areas, highly differentiated, especially below the area of parakeratosis; there were numerous mitoses. The rete showed the characteristics noted in the nodule of Case 6. There was no intercellular or intracellular edema. The rete of the nodule was from 15 to 24 cells in thickness and peripherally from 7 to 15 cells. The basal layer was everywhere intact, except for occasional invasion with round cells.

The papillary and subpapillary layers showed a fine reticulum of edematous collagen fibrils supporting dilated lymph and blood vessels, and a cellular infiltrate. There were many enlarged lymph spaces. The blood vessels of the papillary layer were dilated, their walls thinned and the lumina filled with masses of erythrocytes. In the subpapillary layer, they were dilated, increased in number, and showed proliferation of their endothelium. In the deeper cutis, they showed thickened walls. There was considerable new vascular tissue in the midcutis, in more or less circumscribed areas and associated with epithelioid cells, round cells and fibroblasts.

The previously noted cellular nodule in the subpapillary zone was made up almost entirely of closely packed round cells, also with many epithelioid cells and several constricted capillaries (Fig. 6). Elsewhere, the infiltrate was rather diffuse and composed of the cells noted and a few plasma cells. Adjacent to the cartilage, there were a few small bundles of apparently normal collagen fibers. As in Case 6, there was one area of exceptional vascularity, having the appearance of granulation tissue. There was no necrosis or degeneration, except the edematous degeneration of the collagen.

Case 8.—L. R., a man, aged 51, a salesman, had a firm, pink, elevated nodule, with abruptly rounded sides, and 5 mm. in diameter at its base, on the free border of the helix of the right ear at the upper end of the ascending helix. The lesion was firmly adherent to the cartilage, inflammatory at the periphery, and had a small indentation in its top filled in by a crustlike, adherent scale. It had been present for two months, and had gradually attained its present size during one month. It was first observed because of pain when the ear rested against a pillow, and the patient thought that "a pimple was forming." The chief complaint was of pain described as "pulling" and continuing for an hour at a time. There was no history of trauma, chilblains or freezing, and the ear showed no other abnormalities. There was pronounced relief from pain after one-half skin unit roentgen-ray application and decrease in size of the nodule after a second application was given, one week later. The treatment has not been concluded.

COMMENT

A summary of the eight cases recorded by Winkler, one by Mitchell, and twelve recorded by me, shows that the condition has so far been observed only in adult males, from 27 to 68 years of age. The earliest time of appearance of the lesion was at the age of 26, and the latest at 67 years and 6 months. The condition had been present for periods varying from two months to twelve years before coming under observation. In two of Winkler's cases, in Mitchell's case, and in ten of my series, advice was sought primarily because of the lesion on the ear, and in the remaining six cases of Winkler, and in four of mine (including two observed in 2,980 drafted men), the condition was an incidental finding.

A striking feature is the uniformity with which the lesion is situated on the upper pole of the ear in the region of the crown angle, and the frequency of its location on or near the free border of the helix. In only three of twenty-one cases in which the exact location is given, was the lesion situated toward the posterior or median surface of the helix, although near the free border. In no instance, has more than one lesion been present on either ear, although in four of a total of twenty-three cases the condition was bilateral. The remaining single lesions occurred with about equal frequency on either ear. In my series, a father and son are represented with single lesions on the right and left ear, respectively.

The earliest time at which an untreated lesion has been seen was eight weeks after its first appearance (Case 8). It was then a rounded, slightly flattened, firm nodule, 5 mm. in diameter, with a depressed center covered by a crustlike scale. The nodule was adherent to the cartilage, and its periphery was inflammatory. In Case 7, the recurrence of a nodule during two weeks was observed, following unsuccessful treatment with radium applied six weeks earlier. During these two weeks, the lesion recurred at the original site as a flat, circular nodule, 3.5 mm. in diameter, embedded in the border of the helix, firmly attached to the cartilage, and covered by a thin, adherent scale and described by the patient as a replica of the original lesion. These observations are in accord with the history usually obtained in other cases, that the nodule appears suddenly, reaches its maximum size within a few weeks, and then remains practically unaltered, except for secondary inflammatory changes that are probably due to trauma and infection when the overlying scale or crust is scratched off.

The growths are single, ovoid or circular, well defined and firm nodules, varying from 3 to 10 mm. (usually less than 5 mm.) in their longest diameter. They are embedded in the skin or elevated several millimeters above the surface, and in most instances are found to be

immovable and firmly attached to the cartilage. The nodule is flat-topped or convex, with sloping sides, and often has a deep or shallow central depression filled in by a more or less adherent, crustlike scale. Removal of the scale discloses either an irregularly cupped depression, or a pinpoint to pinhead sized defect or area of ulceration with a red and moist base. The color of the nodules varies; they may be skin colored, grayish, rose red, yellowish, or waxy and somewhat translucent, bearing at times a resemblance to epithelioma. A narrow zone of hyperemia is occasionally seen around the lesion, and except for this, the adjacent skin is normal in appearance. In particular, keratoses have never been present on any part of the ears of the patients in my series.

In three of Winkler's cases, a purulent discharge occurred at intervals from the center of the nodule, and the histologic examination in a fourth case showed the presence of a tiny abscess above the cartilage. In Case 4 of my series, a slight "mucous like" discharge was said to have been present in the early stage after removal of a thick, adherent scale, and with these exceptions the cases on record have not been attended by suppuration or discharge. Secondary infection following trauma due to scratching or picking at the lesion probably accounts for the occasional presence of a purulent discharge.

Pain is a characteristic feature in nearly all of the cases. As a rule, the nodule is painful on pressure from the beginning, and the pain usually first attracts attention to the presence of the lesion. Later the pain may be moderate or quite acute, and prevent resting of the head on the affected side, and it may be of such acuteness as to awaken the patient from sleep. Some patients form the habit of sleeping with the cupped palm held over the ear. Pain may occur without the incidence of pressure and resemble the darting pain of a corn, or it is variously described as pulling, stabbing, or as though due to the presence of a thorn, and it may persist for an hour at a time. Recurrent nodules are as painful and tender as the original lesions.

Spontaneous disappearance of a nodule occurred in one instance (Case 3) after it had existed for about eighteen months, with no recurrence five years later. In contrast to this, the nodules had persisted unaltered for ten and twelve years in two cases. Recurrence after excision was observed in one instance (Case 6); within a month after what was probably an incomplete removal of the nodule, a recurrent nodule appeared in the edge of the scar. In one of Winkler's patients (Case 7), a recurrence was suspected four months after excision.

SUMMARY OF HISTOLOGIC STUDY

A detailed histologic study of four cases reveals a similarity of predominating features. All patients showed a chronic inflammatory process in the corium, involving the cartilage, and a circumscribed

hypertrophy of the epidermis resulting in the formation of a scale-capped nodule or plaque with broad, flat base, and slightly depressed center. The characteristics of the inflammatory reaction are its diffuseness and depth, the intense and widespread edema, the pronounced vascular proliferation, and the degeneration of both collagen and elastic tissue. The cellular reaction is chiefly epithelioid and fibroblastic, although in several sections there are well defined round cell aggregations. In two instances, hyaline degeneration and necrosis had occurred. The epidermal characteristic is a circumscribed and well developed acanthosis. These histologic changes are sufficiently uniform and characteristic to allow the grouping of these cases under one head, and their differentiation from verruca, keratosis, epithelioma, clavus and other conditions.

The etiology of the condition is unknown. The development of the nodule was not preceded by frostbite in any of the cases, and a history of the ear having been frozen was obtaned in only one instance (Winkler, Case 7). A history of direct injury was absent in all of my cases, although in one patient (Case 4) the nodule developed after long continued pressure on the left ear while the patient was lying on the left side, following a decompression operation in the right temporal region for a skull fracture. This patient's father had consulted me a year previously because of a nodule on the right ear.

It is of interest, and perhaps of etiologic importance, to note that so far the condition has been observed only in men, and that the nodules have been situated only on the upper pole of the ear and most often on the edge of the helix. This part of the ear is included in the scaphahelix, which, according to Schwalbe,[5] and the recent investigations of Streeter,[6] is the part of the auricle subject to greatest variation, especially as regards its extent and the character of folding of the helix. Furthermore, variations in the form and modeling of the ear are observed with much greater frequency in men than in women. Thus, the five ear types described by Schwalbe, in which the tuberculum auriculae or Darwin's tubercle is recognizable, occur in 73.4 per cent. of men and in 32.8 per cent. of women, and the first three ear types, or those in which the tubercle is most pronounced, occur in 30.7 per cent. of men and in only 12.7 per cent. of women. The average feminine ear is also smaller, and the folding of the helix is more complete than in men (Schwalbe).

It has been suggested that the pathogenesis of the painful nodule is in some way concerned with the tension under which the skin of certain parts of the ear is held by the resiliency of the auricular cartilage, due

5. Schwalbe, G.: Handbuch d. Anatomie des Menschen, Bardeleben, Jena, G. Fischer **5**: Pt. 2, 1897.

6. Streeter, G. L.: Contribution to Embryology, No. 69, **14**:111 (Dec.) 1922.

to its peculiar folding. In this connection, it is of interest to note Streeter's observation that "the auricular cartilage may be considered to have acquired its definitive adult form when the human embryo has reached a length of from 40 to 50 mm.," and that "the folding of the cartilage is not produced mechanically by resistance on the part of the ectoderm, as has been maintained." In the adult ear, the structure of the skin of the region in which the nodular growth is most often situated, is, according to Schwalbe, essentially the same as that of the neighboring skin, has subcutaneous fat, is movable over the cartilage, but has less elevated papillae. On the concave lateral aspect of the ear, where the nodule has as yet not been observed, the skin is firmly and immovably united with the perichondrium, and subcutaneous fat is absent or present only in slight amount, and the papillae are diminished in number and size. Schwalbe has also determined that an increase in the dimensions of the ear occurs with advancing age, due to flattening out of the concha and other folds of the auricle, which he attributes to a change in the elastic fibers of the skin and cartilage, related to the wrinkling of the skin in the aged.

The foregoing embryologic and anatomic observations would appear to indicate that tension of the skin, or pressure exerted on it due to the resiliency of the cartilage, do not play a part in the production of the condition under discussion.

Winkler cites Jadassohn to the effect that changes in the cartilage of the ear are often demonstrable clinically, more especially as nodule-like, whitish areas visible through the thinned skin of the helix, in addition to thinning of the margin of the ear, protuberances and depressions, as well as nodulations. He suggests the possibility that cartilage thus altered could readily be injured by reason of traumatic, chemical or thermal influences, with consequent secondary infection and chronic inflammation, the inflammation then being maintained by the altered or degenerated cartilage acting as a foreign body. This, Winkler states, would provide an explanation for the epithelial proliferation and the giant cell formation observed by him.

Certain minute anatomic conditions that are more or less peculiar to the region in which the painful nodule is most often found appear to warrant consideration. Schwalbe states:

> A variable number of minute, circular perforations of the cartilage are present near the free border of the helix, some of which give passage to blood vessels. These perforations are most numerous in the descending portion of the helix, a smaller number being found in the posterior edge of the ascending helix. . . . The average thickness of the auricular cartilage is 1 mm., and at the free border of the helix it is strikingly thinned and sharpened. . . . In consequence of perforations in the edge of the helix, small pieces of cartilage are frequently completely separated along the posterior helix, especially in the region of Darwin's tubercle.

Further:

L. Meyer has shown that at several places vessels penetrate from the perichondrium into the cartilage. These places are distinguished by a peculiar softening of the cartilage; cells and elastic fibers are decreased; the ground substance appears in part homogeneous and is softer than in other parts. Tataroff describes such altered vascular cartilage from the first portion of the ascending helix and in the region of the crus inferius anthelicis.

Adopting the suggestion of foreign body action of the cartilage, advanced by Winkler as perhaps concerned in the pathogenesis of the painful nodule, the anatomic peculiarities described in the foregoing may provide an explanation for the uniformity of development of this condition in a restricted locality.

The painful nodule may at times bear a clinical resemblance to epithelioma. The latter is of firmer consistency, has abruptly elevated, rounded borders, which are vascular, semitranslucent, and often waxy, and central ulceration is frequent. Judging from the length of time that two of the painful nodules had existed unchanged (for ten and twelve years), there appears to be no tendency for them to undergo malignant change.

Keratoses are differentiated in that they are scaly, flat, wartlike patches rather than nodules, and by their frequent occurrence on an inflammatory base that bleeds and exhibits gaping follicles on removal of the scales. Pernio is an inflammatory swelling of indefinite outline, often vesicular and at times necrotic, and is related to exposure to cold, all of which serve to distinguish it from the painful nodule. Angiokeratoma is differentiated by its essential vascularity, irregular wartlike hyperkeratosis, multiplicity of lesions, absence of pain, and its appearance by predilection on other parts than the ear. The callosities produced on the ears by pressure from telephone and radio headpieces are gray or brown, centrally raised, superficial horny plaques, and are thereby readily differentiated. The differentation from the conditions mentioned is further and definitely established by histologic examination.

TREATMENT

Excision of the nodule, inclusive of the cartilage, is probably the best treatment, and is also preferred by Winkler. The excision must be sufficiently wide to include the entire lesion, or it will be followed by recurrence, as in Case 6. Excisions made twelve and five years ago have not shown a recurrence. In one case, an application of radium sufficient to produce an inflammatory reaction had been made elsewhere, and a recurrence was present eight weeks later. In three cases, no treatment was given, and in one of these the nodule disappeared spontaneously. Roentgen-ray treatment was given in eight cases; in three, the lesion disappeared after a maximum of four sub-

erythema applications with no recurrence after three years. In one case, the lesion was not influenced by the roentgen ray, in two it disappeared and then recurred in two months, and in one case, the lesion disappeared almost entirely and recurred one year later. One recent patient is still undergoing treatment.

In all of the eight patients treated with the roentgen ray, pronounced relief from pain was experienced after the first dose, although tenderness persisted. In Mitchell's case, repeated applications of carbon dioxid snow and radiotherapy had markedly decreased the sensitiveness of the lesion.

Experience with other methods of treatment is lacking, but actively destructive measures, such as fulguration and the galvanocautery, are suggested when excision is refused and radiotherapy has failed.

CONCLUSIONS

The remarkable uniformity in the clinical symptomatology, as well as in the histologic features of the cases of painful nodule of the ear recorded thus far by Winkler and myself, indicates that the condition is an entity. It is readily differentiated from epithelioma, keratosis and other conditions which may resemble it, on the basis of both clinical and histologic characteristics. The etiology is unknown, although the anatomic peculiarities of the part of the ear almost exclusively affected are suggestive of the pathogenesis of the condition, and lend support to the foreign body theory advanced by Winkler.

445 Milwaukee Street.

DISCUSSION

Dr. Harold N. Cole, Cleveland: I think we are indebted to Dr. Foerster for his work on painful nodule of the ear. It is a more common condition than is suspected, and we often overlook the cases and diagnose the condition as something else. I have had at least four cases, and I am quite sure two other patients had the same condition. Our greatest trouble is in trying to cure them. We have used carbon dioxid snow, radium and the roentgen ray, and we have tried excising the nodules, but none of the patients are well today. The condition has recurred after excision and other methods

Dr. Howard Morrow, San Francisco: Dr. Foerster did not mention a type of treatment we have been using for many years, namely, curetting under procain anesthesia followed by cauterization. We have had recurrences after that type of treatment, but they have been few. Probably four or five patients remain cured and then one has a recurrence. Recurrences are treated in the same way, and I have yet to see a patient in whom we have had to repeat the treatment more than three times. The treatment is not particularly painful if properly done under the anesthetic. When the procain wears away there is some pain which lasts for a couple of hours, and the patient will be unable to rest his ear on the pillow for a couple of weeks, but as the patient usually is unable to sleep on the painful ear, it is not much more painful following treatment than during the preceding stage.

Dr. Grover W. Wende, Buffalo: I think, as Dr. Cole does, that the diagnosis is easily made. The location and the smoothness of the lesion with the associated pain makes this, as he claims, a condition having an entity of its own. I have tried the various treatments suggested in a number of cases—radium, roentgenotherapy, excision—with more or less recurrence. In the last three or four patients, I have used electrolysis, going somewhat wide of the lesion and have had no recurrence. While I fully appreciate that this method is actual destruction of tissues by decomposition, there is something about the destruction by electrolysis that is different, that secures a cure. Since radium and roentgenotherapy have come into ordinary usage, there has been a tendency to abandon electrolysis, but I believe electrolysis occupies a place for which we have no substitute.

Dr. Alfred Schalek, Omaha: When I saw the title of Dr. Foerster's paper, I wrote to him that I was one of the victims of this disease. I can talk about it from my own experience and observations, which may possibly be of some benefit.

I have had this trouble for many years. The nodules appear almost at any time, last for three or four months, and disappear after different treatments, only to return again. They descend contiguously from the upper edge of the helix of the right ear. Destruction of a nodule seems to prevent its recurrence in the same place. The pain is severe, and if I sleep on that side it wakes me up. I have consulted a number of my friends during the last fifteen years, and the diagnosis made varied between keratosis, seborrhea and epithelioma. I have tried every conceivable treatment, curettage, trichloracetic acid, carbonic acid snow, roentgenotherapy and radium. At last operation, a surgeon found loose pieces of cartilage in the tissues, and he thought chondritis might be the cause and that the skin manifestations might be secondary to it. The ear was never injured or frozen. I believe that this trouble is a pathologic entity, and that since attention has been drawn to it, it will be found frequently.

Dr. Augustus Ravogli, Cincinnati: I am of the opinion of the essayist that traumatism has something to do with these cases. I had one case in a prize-fighter. He had received a blow in the helix and had a deep papule full of blood, a hematoma. I opened it, and after a while lost sight of the patient. I have had some cases in which there was no injury, and on one occasion I mistook one of the little tumors for an atheroma, opened it and expected to see some greasy substance discharged, but there was none; there was no injury of the cartilage. I think that in some of the cases shown by Dr. Foerster we cannot exclude entirely the incipient epithelioma of Bowen's disease or angiokeratoma.

Dr. Howard Fox, New York: I think it likely that Dr. Cole is correct in saying that some of these cases are unrecognized, and are really more frequent than may be supposed from the number reported. I have seen recently a case in a woman with a nodule on the antihelix, which did not respond satisfactorily to radium, and I think it may have been similar to the condition before mentioned. A case of this kind was shown last year by Dr. Levin before the Dermatological Section of the New York Academy of Medicine.

Dr. Otto H. Foerster: I have nothing to add except to express my appreciation of the discussion and the suggestions as to treatment.

ERYTHREDEMA

PINK DISEASE. SO-CALLED ACRODYNIA IN INFANTS AND YOUNG CHILDREN *

JOHN BUTLER, M.D.

MINNEAPOLIS

My purpose in presenting this paper is twofold: First, to stimulate the dermatologist's interest in a disease that is generally and perhaps erroneously regarded as acrodynia by many American physicians; and secondly, to emphasize the fact that the cutaneous manifestations, which are among the first to appear and the last to disappear in the course of the disease, are pathognomonic.

In 1914, at the Australasian Medical Congress, Dr. H. Swift,[1] of Adelaide, described a clinical entity occurring in infants and young children, characterized by serious involvement of the cutaneous and nervous systems. The skin changes were constant, consisting of a more or less generalized miliarial rash accompanied by profuse sweating, and swollen, bluish-red cold and clammy desquamating hands and feet. Paresthesia of the extremities, diminished reflexes and cutaneous sensibility, photophobia, mental irritability, depression, drownsiness, anorexia, loss of weight, muscular weakness and insomnia were also prominent symptoms. Swift considered this a new disease and named it "erythredema," although he did not regard the word as satisfactory, as the swelling of the hands and feet did not pit on pressure.

Cases of the same character as those described by Swift had also been identified and spoken of by Dr. C. P. Clubbe [2] of Sydney, Australia, as the "pink disease." Dr. A. J. Wood,[3] of Melbourne, has published an important paper on the subject. He states that he had frequently seen such cases in Melbourne during the last thirty years, and that before his time, Dr. Snowball, of the Children's Hospital, recognized the complaint and spoke of it as "raw beef hands and feet."

Wood and Cole, of Melbourne, collected reports of eighty-eight cases; fifty-two males and thirty-six females, the ages of the patients varying from 4 months to 3½ years. Death occurred in five cases; one from heart failure and four from bronchopneumonia. F. Parkes

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* Read before the Section on Dermatology and Syphilology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Swift, H.: Lancet **1**:611, 1918.

2. Clubbe, C. P., cited by Wood: M. J. Australia **1**:145 (Feb. 19) 1921.

3. Wood, A. J.: M. J. Australia **1**:145 (Feb. 19) 1921; abstr., Lancet **1**:811 (April 23) 1921.

Weber,[4] Thursfield and Paterson,[5] have reported cases in England under the respective titles of "Erythredema" and "Dermatopolyneuritis."

Dr. J. B. Bilderback,[6] of Portland, Ore., was the first to draw attention to this interesting disease in this country. In 1920, under the title "A Group of Cases of Unknown Etiology and Diagnosis," he reported ten cases corresponding to the disease previously described by the Australian physicians. Dr. Bilderback's associate, Dr. W. F. Patrick, sent a report of these cases to Dr. J. L. Morse of Boston, who, seeing a suggestion of pellagra in them, referred the report to Dr. William Weston,[7] of Columbia, S. C., who has had wide experience in that disease. Weston regarded them as cases of acrodynia, corresponding to the French epidemic of acrodynia in 1828. Dr. A. H. Byfield,[8] of Iowa City, had been observing similar cases for some time and made an extensive report of them. Dr. John Zahorsky [9] of St. Louis observed and reported three cases as probable pellagra the same year, with an excellent contribution in a report of ten cases in 1922 under the title "Pink Disease." Zahorsky observed thirty cases in all. Brown, Courtenay and McLachlan,[10] of Toronto, reported a clinical and metabolic study of eight cases as acrodynia in 1921. Interesting reports and studies of the disease under the title of acrodynia, or questionable acrodynia, have been made by Cartin,[11] Emerson,[12] Vipond,[13] Davis,[14] McNeal,[15] Oliver [16] and Rodda.[17] Up to the present time, Field is the only American writer to report a case under the name of erythredema, as originally suggested by Swift.

SYMPTOMS OF DISEASE

The first change noticeable at the onset of the disease is the altered disposition of the child, which is characterized by a combination of

4. Weber, F. P.: Brit. J. Child. Dis. **19**:17 (March) 1922.
5. Thursfield, J. H., and Paterson, D. H.: Brit. J. Child. Dis. **19**:27 (March) 1922.
6. Bilderback, J. B.: Northwest Med. **19**:263 (Oct.) 1920.
7. Weston, William: Arch. Pediat. **37**:513 (Sept.) 1920.
8. Byfield, A. H.: A Polyneuritic Syndrome Resembling Pellagra-Acrodynia (?) Seen in Very Young Children, Am. J. Dis. Child. **20**:347 (Nov.) 1920.
9. Zahorsky, John: J. A. M. A. **29**:1975 (Dec. 9) 1922.
10. Brown, A.; Courtney, A. M, and MacLachlan, J. F.: Arch. Pediat. **38**:609 (Oct.) 1921.
11. Cartin, H. J.: Pennsylvania M. J. **24**:287 (Feb.) 1921.
12. Emerson, P. W.: A Case of Acrodynia, J. A. M. A. **76**:285 (July 23) 1921.
13. Vipond, A. E.: Arch. Pediat. **39**:699 (Nov.) 1922.
14. Davis, C. M.: Arch. Pediat. **39**:611 (Sept.) 1922.
15. McNeal: Minnesota Med. **5**:153, 1922.
16. Oliver: Arch Dermat. & Syph. **5**:808 (June) 1922.
17. Rodda: Personal communication.

extreme mental irritability, depression and drowsiness. He is unhappy, peevish and wretched, crying more or less constantly. Any attempt to render him more comfortable or please him in any manner is resented by screaming or crying, often biting or striking at the mother or attendant. At other times he is drowsy, listless, and when fully awake talks incessantly. The favored position of the patient is lying on the hands and knees or abdomen, with the head buried in the pillow. The child sleeps little and irregularly day and night. At times he scratches viciously, wrings his hands, pulls his fingers or hair, rubs his feet together or attempts to put his hands or feet in his mouth. There is a loss of appetite. It is difficult to make the child take any kind of nourishment, and there is a consequent loss of weight. Profuse sweating, intermittent or constant, is a prominent symptom, requiring several daily changes of the clothing and bed linen. Stomatitis and gingivitis are frequently observed, and in a number of cases reported, the teeth of the lower jaw became loose and fell out. Photophobia occurs at some time in practically all of the cases. Nasopharyngitis has been present in many cases, usually beginning at the onset of the disease. Paresthesia of the hands and feet is a pronounced symptom, and anesthesia of the skin is often present. When a biopsy specimen was taken in my case, the patient apparently did not feel the operation, although any movement of the limb would cause pain. The reflexes are normal or diminished, and muscular atrophy and weakness is observed in all cases. The skin changes may be divided into a miliary rash and a cyanotic red, swollen, scaling condition of the hands and feet. The miliary rash, which is not present in all of the cases, is characterized by the presence of pink, red or dark red acuminate papules varying in size from that of a pinpoint to that of a pinhead, accompanied by profuse sweating and distressing itching. The eruption is largely confined to the trunk, although the extremities are sometimes involved to a lesser degree. The severity of the eruption varies from day to day with the amount of sweating, the intense itching with the resulting scratching often producing severe dermatitis, in some cases complicated by a pyodermia. The rash may be present for a considerable time during the course of the disease, or it may be transitory and intermittent and may be confused with measles, German measles or scarlet fever. In some cases, a persistent or fleeting erythema may be observed on the cheeks, ears or tip of the nose.

The condition of the hands and feet is characteristic and should not be confused with any other disease; in other words they are absolutely diagnostic and pathognomonic. There is a symmetrical, uniform enlargement of the fingers and toes, extending to the wrists and ankles, where it gradually fades into the normal skin. The impression one

gets of it tallies with Snowball's unique description of the condition as "raw beef hands and feet." The hands appear swollen, showing a dusky bluish-red erythema, and give the impression of being enlarged rather than edematous. Owing to the swollen condition, flexion or extension of the fingers is greatly restricted. They are cold to the touch, there is no apparent pitting on pressure, and the color returns slowly to the pressure area. In some cases, the dorsal aspect of the fingers shows superficial ulcerations, probably due to the traumatism from the wringing of the hands. In some cases, the palms and soles show desquamation; in others, large plaques of the thickened corneal layer are exfoliated, the condition somewhat resembling a plantar blenorrhagic keratosis. In a few of the reported cases, loss of one or more nails of the fingers or toes has occurred. The gastro-intestinal tract is not markedly disturbed. In a few cases, diarrhea is observed, but constipation is the rule. In some cases, the respiratory system is involved, a few patients developing pneumonia or bronchitis during the course of the disease. In others, the onset of the disease seemed to be postinfluenzal followed by the nasopharyngeal complication already mentioned. Urine examinations have been negative for sugar and albumin. A temperature as high as 101 F. has been observed, especially in cases with respiratory involvement.

Zahorsky has made careful blood examinations in this disease. He mentions that:

> There is a marked hyperleukocytosis; from 12,000 to 30,000 is the rule in all severe cases. The differential count varies in different children. The polymorphonuclear cells seem increased, but in young infants the lymphocytes are found about equal in number. The haemoglobin is not far from normal. No marked anemia in the usual sense is demonstrable, while the erythrocytes in mild or protracted cases are diminished in number. Bilderback found a great polycythemia in one of his cases. The blood showed 6,000,000 red cells. This was paralleled in two of Zahorsky's cases (5,900,000 and 5,200,000). Zahorsky believes that too few counts have been made in the acute stage of this disease. The blood coagulates rapidly and no hemorrhagic tendencies were noted.

GEOGRAPHICAL DISTRIBUTION

The disease has a widespread geographical distribution. Of the 100 or more cases reported in this country, nearly all of them were sporadic and have been observed in the Mississippi Valley and the Pacific coast. The disease usually begins in the spring of the year, lasting until the fall, winter or following spring, sometimes longer. It would seem unreasonable to believe that a condition with such outstanding symptoms could exist unrecognized for any great length of time, yet it is only during the past ten years in Australia and during the past four years in this country and England that any mention has

been made of this entity. I wonder whether many cases of this self-limited disease have not been mistaken for a syphilitic or tuberculous condition and treated as such in the pre-Wassermann and pretuberculin test days.

ETIOLOGY

The etiology of the disease is obscure. A few writers regard it as a deficiency disease, nothwithstanding the fact that practically all of the patients in the reported cases were on a well balanced diet. The preponderance of opinion is that it is a self-limited, sporadic infection, with the onset usually in the spring of the year, accompanied by fever in most and leukocytosis in all of the patients. Many writers believe that it is postinfluenzal polyneuritis. Littlejohn[18] believes it is an infectious disease of the nervous system, analogous to infantile paralysis and epidemic encephalitis, involving especially the vasomotor centers in the medulla and spinal cord. Like these diseases, it occurs sporadically. Unlike them, however, it is absolutely confined to infants and young children. He believes the site of entry of the infection, in all probability, is the nasopharynx. Others consider the condition a result of chronic intoxication from the intestinal tract. In a lethal case complicated by tuberculosis, necropsy findings by Byfield showed: "involvement of an occasional anterior-horn cell of the spinal cord, gliosis about the central canal and edema of the sensory roots." The pathology of the skin changes in this disease apparently has been given little attention.

In my patient, a biopsy and tissue examination from the hand was made by Dr. Henry E. Michelson. His report was as follows:

> The tissue was stained with hematoxylin-eosin. The striking feature was the marked hyperkeratosis. There was no parakeratosis. The stratum lucidum was visible. There was some ballooning of the cells of the granular layer. The basal layer was intact. There was no acanthosis. In the corium, there was a slight infiltrate of lymphocytes arranged in small strands or clumps. There were some fibroblasts also present in these areas. There was considerable edema of the corium; nothing in the section that was pathognomonic. The marked hyperkeratosis and the edema alone differentiated the slide from a bit of tissue taken from the same area in a normal child.
>
> A section, taken from the palm of a marked case of acromegaly, was almost similar, with the possible exception that there was a hypertrophy of the entire derma in the face of acromegaly.
>
> In parakeratosis blenorraghica there is a somewhat similar picture, but there is a marked parakeratosis and more infiltrate.
>
> In conclusion, Michelson stated that the section was characterized by hyperkeratosis and edema of the corium. He emphasized the fact that the edema alone must account for the great increase in the circumference of the fingers.

18. Littlejohn, E. S.: M. J. Australia **1**:689 (June 23) 1923.

The age limits of the disease in this country has been from 3 months to 7 years. Its course is marked by exacerbations and remissions, the duration varying according to the severity from three months to two years. The prognosis is good. About 5 per cent. of the patients die, mostly from pneumonia. The treatment is symptomatic; forced feeding is often necessary. A carbolized calamine lotion may be applied to skin; Alpine lamp therapy to the hands and feet was comforting and apparently helpful to my patient. Rodda has observed rapid improvement in some of his patients following removal of the tonsils and adenoids. Vipond reports that he treated two patients with a vaccine prepared from diplococci discovered in the lymphatic glands. The reaction was slight, and in three days both patients showed a definite improvement.

NOMENCLATURE

Swift,[19] who first described this disease and named it erythredema, admitted that the name was unfortunate as the skin did not pit on pressure. Perhaps the pitting could not be produced on account of the extreme hyperkeratosis. At any rate, the specimen taken from my patient showed marked edema of the corium. This being the case, it would seem that Swift's name "erythredema" is appropriate and most descriptive of the disease from the dermatologist's point of view. It, of course, conveys no idea of the associated nervous symptoms. The skin changes of the hands and feet are constant and recognizable throughout the course of the disease, however, whereas the nervous symptoms are more variable and of shorter duration. For this reason, I believe Swift's name a suitable one. Some writers prefer the term "pink disease," which I believe is inappropriate, as the miliary rash is not always present in the disease, and when present is more or less transitory. The majority of the writers in this country, who have observed the disease, have reported it under the title of "acrodynia" evidently correlating it with the French epidemic "acrodynia" of 1828.

A careful study and comparison of the symptoms in the two diseases would seem to prove that they are different entities.

The name acrodynia was first used by Chardon, in 1830, to describe an epidemic attacking about 40,000 persons in Paris in the winter of 1827-1828. Alibert also described the disease at that time as epidemic erythema.

Genest [20] wrote the first accurate account of the French epidemic nearly one hundred years ago. He said that the disease had not been

19. Field, M. C.: Arch. Pediat. **39**:116 (Feb.) 1922.

20. Genest: Affection epidemique de Paris, Series 1, Arch. générales de méd., No. 18-19, 1828-1829.

seen previous to the year 1827 in Paris, when a few cases developed, mostly in soldiers. Almost all of the early cases were diagnosed as digestive disorders. Recurrences were frequently noted, and entire families were affected. The station in life seemed to make no difference, the rich and the poor being affected in equal numbers. He thought that the digestive disorders were a constant accompaniment, and numbness with edema of the extremities was frequent. Sometimes only one symptom would be present. The symptoms on the extremities varied considerably, but often followed about this order: First, there was a feeling of coldness, then of itching, which would soon become painful. The pains were more frequent in the feet than in the hands. Following these symptoms, the skin would take on a red tint, and twitching of the lower extremities was common. Phlyctenules occasionally developed. This was the simple course of events in mild cases.

In the severe cases, which were more common, the patient's symptoms included vomiting, a melanosis of the trunk, swelling of the scalp, edema of the eyelids, and colic accompanied by a stubborn diarrhea that lasted about a month. The legs and feet were edematous, painful and numb with twitching of the lower extremities so active that the patients were unable to walk. The melanosis varied from light brown to dark, almost black, with the face usually excepted. On walking there were pains in the calf of the leg, and desquamation often followed.

Genest stated that he had mentioned all the common symptoms of the disease. He discussed at some length the infectivity of the epidemic. He recited the case of a nursing nun who visited her family while she was taking care of patients afflicted with this malady; a short time later, five members of her family were afflicted. He cited a certain regiment of 500 men, 200 of whom were afflicted in four days. In this particular group, the symptoms were severe; there was extreme nausea, even with vomiting of blood; and many of the patients had voice paralysis. The onset was severe, but recovery was the rule.

He discussed the probable causes and decided that food could not be responsible, because in several army barracks, all soldiers obtaining their food from one common depot, some of the barracks reported cases and others had none. Wine and bread were subjected to special studies, but nothing could be found. Ergot decomposition was searched for in rye breads, but nothing was discovered. The season seemed to make no difference; age was also discussed, but Genest thought that most of the patients were in the prime of life. He reported practically no children, but did mention a hospice for aged people where there was quite an epidemic. He thought there must be some single cause, for he did not believe several causes could bring on such a definite picture.

Genest also discussed treatment, but this was largely symptomatic and empiric. When one has studied carefully the two articles of Genest, it is difficult to correlate the epidemic of Paris with the so-called acrodynia cases of today. The only common symptom is the swelling, redness and painfulness of the hands and feet. You will observe that the symptoms of acrodynia, as described by Genest, are almost identical with the symptoms of arsenical poisoning. In this connection, it is of interest to note that recently Dr. Karl Petrén [21] was appointed by the Swedish Royal Committee to investigate arsenical intoxication in the various occupations. This prompted him to review the literature thoroughly, and he was struck by the fact that the description of the epidemics of acrodynia which occurred in Paris in 1828 was typical for those of chronic arsenic intoxications as we know the condition today.

The French observers searching for the cause of acrodynia thoroughly investigated the food of the patients, but in no instance did they search for arsenic. Petrén believed that the wine should have been examined for arsenic. The Paris epidemic was over in 1832. In Brussels, in 1864, there was a similar epidemic among prisoners, and hospitalized soldiers in the Crimean war also were attacked by the malady. In Genest's description of acrodynia at that time, the question of arsenic poisoning was not discussed by him. Petrén described the arsenic epidemic in beer drinkers in England in 1900, and brought out the fact that the symptoms closely simulated those of the acrodynia of the French authors.

COMMENT

1. This disease is a definite clinical entity.

2. It apparently is in no way related to the French epidemic of acrodynia of 1828.

3. Swift's name "erythredema" seems suitable and appropriate, as it describes the outstanding characteristic changes of the hands and feet that are pathognomonic of the disease.

4. The French epidemic acrodynia of 1828 was probably due to arsenical poisoning.

REPORT OF A CASE

History.—K. B., a boy, aged 5 years, was brought to my office on July 25, 1923, and admitted to the hospital on July 31. He was irritable and extremely restless, or drowsy; he had insomnia, intense itching of the body, hands and feet, profuse sweating, pain in the legs and feet with inability to walk, loss of hair, photophobia, anorexia, a miliary rash on the body, swollen hands and feet. He was cold and livid.

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21. Petrén, K.: Rev. Neurol. **28**:812.

Fig. 1.—Erythredema; so-called acrodynia in infants and young children.

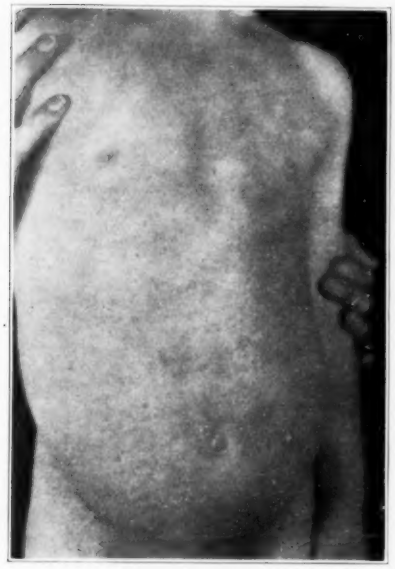

Fig. 2.—Erythredema; miliary rash on body.

Fig. 3.—Erythredema; miliary rash on body.

His parents were living and well, three brothers were living and well, one brother died at the age of 6 months of bronchopneumonia; there was no history of tuberculosis or syphilis. The patient was breast fed for one year, followed by the usual diet of milk, meat, vegetables, bread and cereals. The mother stated that the child had always been thin and underweight. He had had measles two years before and smallpox one year before examination. His present illness began in May, 1923. The patient became restless, irritable and drowsy, sleeping for long periods. It became necessary to arouse him for dinner and supper, and he would continue to sleep during the remaining hours. After two weeks, the sleeping condition stopped; the child became extremely irritable, and a rash developed on the body and extremities. The physician in attendance made a diagnosis of scarlet fever, which he changed

A

B

Fig. 4.—Erythredema; swollen, livid, scaling condition of hands.

the following day to measles and later to digestive disturbances. Intense itching with resulting scratching accompanied the rash, and there was profuse perspiration. The child drank large quantities of water. He had a persistent unproductive cough and complained of severe headaches. Photophobia was marked. He kept his head buried in the pillows or on his mother's chest. His feet and hands became reddened, swollen, itching and painful. He persisted in rubbing or wringing his hands, occasionally biting them, and rubbing the soles of his feet together or against the bed clothing. There was almost complete loss of appetite; it was difficult to make him take nourishment. Occasionally he would ask for some special article of food which when brought to him he would promptly reject.

Physical Examination.—The patient was an undernourished boy, aged 5 years, extremely irritable, talking and crying incessantly, wringing his hands and pulling and occasionally biting his fingers, and avoiding the light by burying his head on his mother's chest. His head seemed oversized, and there was an erythematous patch on each cheek. The pupils were equal and reacted to light. Photophobia was intense. The mucous membrane of the mouth was normal. There was no nasal discharge. The teeth showed two carious roots. There was some loss of hair, which was probably pulled out. The tonsils and tongue appeared normal. The body was covered with a miliary, dark red, itching rash, and there was profuse sweating. The hands

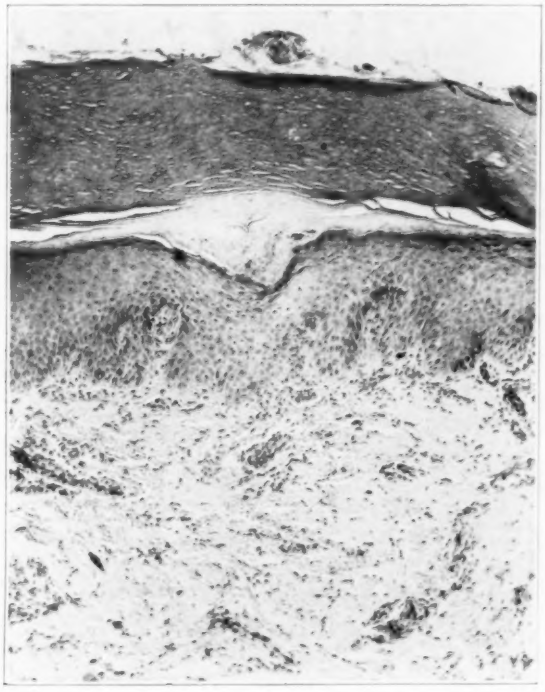

Fig. 5.—Erythredema; so-called acrodynia in infants and young children. Section taken from hand.

and feet were cold, enlarged, livid red, scaling and painful; the color and swelling faded out gradually at the wrists and ankles. There was some muscular atrophy of the lower extremities. The reflexes were normal. Examination of the glands, neck, chest, lungs, spine and genitals were negative. The abdomen was slightly distended. No masses were present, and there were no intestinal disturbances. The liver and spleen were not palpable.

Laboratory Findings.—Urinalysis on four occasions was negative. Special studies for arsenic in the urine were negative. The patient's blood count was negative, with the exception of a leukocytosis of 23,100 on admission; there was a gradual decrease to 13,700, the last count being taken on August 28. The differential count at all times showed an increase of polymorphonuclears.

The Wassermann test on two occasions was negative. Throat cultures were negative. The blood contained: creatinin, 1.7 mg.; urea nitrogen, 21.5 mg.

Treatment and Course.—Study of diet and advisability of a well balanced vitamin diet, also cod liver oil were suggested by Dr. Huenekens.

The teeth were examined by Dr. Hartzell, who reported as follows: Their condition was fair; however, he advised extraction of the roots of the carious teeth.

On admission, the temperature was 100.1 F. It persisted within the normal limits throughout the course of illness, with the exception of one or two occasions on which it ascended to 101.2 F. The pulse ranged from 100 to 90, and remained within those limits at all times.

The child's condition did not vary much until August 23, when he was permitted to be out of bed and about the ward. The itching apparently had diminished, and the miliary rash was disappearing. The hands and feet, however, showed improvement. The child drank large quantities of water, although the mother stated that he began this habit about one year before his present illness. It did not appear to interfere with his general condition, unless it had some relation to the condition of his hands.

Improvement was noted on August 30, although the fingers were swollen and skin appeared to be exfoliating. The patient was more cheerful since he was up and around. He perspired profusely and continued to drink a large amount of water. The temperature had been normal for the last two days. Alpine lamp therapy seemed to cause some improvement.

The patient was discharged from the hospital, Dec. 8, 1923. All symptoms had disappeared except the condition of the hand, which was greatly improved. On admittance the patient weighed 30 pounds (13 kg.); on discharge he weighed 35 pounds (15 kg.).

DISCUSSION

Dr. Edward A. Oliver, Chicago: In looking over the literature on this subject, which is extremely scant, it seems that many of these cases are not recognized. There must be more than are reported in the literature. Dr. Butler's paper was so comprehensive and covers the subject so well that there is little to add except to report another case which was shown at the Chicago Dermatological Society about a year ago. The picture in that case tallies in every way with Dr. Butler's except for the presence of a miliary rash. The patient was a girl, aged 3, who was brought to the hospital with the complaint of diarrhea. The condition had been diagnosed as pemphigus, impetigo and a number of other conditions. The child had had elevation of temperature for some time and had complained of the skin eruption. She had been losing weight and strength and was wasting away. The clinical picture was so typical that after once seeing a case, I think we could not fail to recognize another. The child was a picture of abject misery. She sat with her hand in her mouth or with her head buried in the pillows, and cried and was peevish all the time. I think she did not have a good sleep while she was in the hospital. There were extreme redness and marked sweating of the hands, and yet the hands felt cold and clammy. There was much irritation about the buttocks and canker-like sores in the mouth. She was in the hospital for about three months, under careful examination. The spinal fluid and blood Wassermann reactions were negative, but the fluid was under some pressure. There were about 10 cells to the cubic centimeter. The hemoglobin was 65 per cent.; the red cells numbered 4,000,000; white

cells, 17,000, with about 72 per cent. polymorphonuclears. I think this case tallies well with Dr. Butler's. The child died of bronchopneumonia after being in the hospital for about three months. We were never able to clear up the skin condition in any way. The scalp was almost bald from pulling out the hair here and there, and on a number of occasions we found teeth in the bed. She lost at least six teeth during her stay in the hospital.

Necropsy showed marked necrosis of the mandible. The hands and fingers were spindle-shaped, with much scarring. The skin was thick and leathery. There were sclerosis of the cranial bones, an abscess of the tissues of the sacrum, an abscess of the left lung and cloudy swelling of the heart, liver and kidneys. There was also an accessory suprarenal.

Dr. Lyle B. Kingery, Portland, Ore.: I saw the patient from which the last two pictures were made, in consultation with Dr. Bilderback, who was the first to call attention to the disease in this country. The patient was 6½ years old. There were marked photophobia, a peculiar mottling of the gums and a disseminated maculopapular rash over the entire body, which was particularly pronounced on the hands and feet. In addition, the palmar and plantar surfaces presented a peculiar purple congested appearance, with some desquamation somewhat suggestive of the picture seen in pellagra. There was also most profuse sweating, so much so that if one took hold of the patient's hand it gave the impression of having been recently withdrawn from lukewarm water. The child intermittently complained of "electric shock-like" sensations in the arms and legs. I think this is the first time a case has been reported in which the patient was old enough to explain why he almost constantly wrung the hands.

It seems to me that while the cutaneous symptoms are pathognomonic and the condition can be diagnosed therefrom, the disease presents a definite syndrome; a syndrome involving the nervous system as evidenced by sensory manifestations, the sweat gland apparatus as evidenced by the marked hyperhidrosis, and finally the skin as evidenced by the eruption described in the foregoing. I think it is the hope of Dr. Bilderback that experiments with the spinal fluid, the blood and other material can be undertaken in these cases directed toward the demonstration of either an infectious or metabolic etiology.

Dr. Oliver S. Ormsby, Chicago: In 1920, I saw one patient, and two years later I saw another. This is a severe constitutional disorder, not a dermatosis, and for that reason these children, being very ill, go to the pediatricians for treatment, and that is why we do not see them more often. I think it is well for the members of this Section to have attention called to this condition, so that we may be able to recognize it. I was glad to hear Dr. Butler say that he considered this an entity, and different from the condition described by the French physicians several years ago. That was my impression. This condition seems to be much more severe and serious than that reported previously.

My two cases occurred in males. The first was a child, aged 4 years, and in that case the disorder had been present for nine weeks, having occurred one month after an attack of influenza. The symptoms were much like those described by Dr. Butler. The patient was not well following the attack of influenza; he was drowsy but could not sleep. He had lost weight, and there was intense itching day and night, with marked photophobia and pronounced sweating. When I first saw the child there was marked erythema swelling and desquamation of the palms and soles, including the fingers and toes; and an eruption was present over the entire trunk and extremities. This

was miliary in character, and consisted of vesicles, pustules and small papules. During the course of the disorder open lesions occurred in the mouth. The principal feature of the disorder was the extreme restlessness. The child constantly rubbed his hands and feet and could not sleep, until he became so exhausted that he could not stay awake any longer.

The other child was 3 years of age, brought in from another state and was under observation for a short time. The disorder had been present for seven months, and the patient was in a deplorable condition. The first symptom was the rubbing of the hands and feet, as though they burned or itched, and he would cry out at times as though in pain. The skin of the palms was red and became thickened and fissured; the feet were less involved in this case. The child was in an extreme condition of marasmus when I saw him, had not slept for many weeks, and the rubbing of the hands and feet was going on all the time. There was no eruption on the body, but there were lesions all through the mouth which looked like mucous patches. Later, ulcers appeared on the fingers, and the tips became necrotic. One week before I saw him, he had pulled out two lower teeth. His previous history was negative; he had never had influenza, but he had had tonsillitis three months previous to the onset of this disorder. There were marked conjunctivitis and strabismus, with crusting and edema of the lids. On the legs, the skin was dry and scaling; the toes were red, the skin thickened and scaling; and the soles were red, scaling and fissured. All the nails were absent from the right hand, and the distal phalanx of the thumb and first finger were absent except for the protruding bone. The entire palm and the palmar surface of the fingers were red, thickened, scaling and fissured. The left hand was not so much involved, and the nails were still present, but ulceration was beginning. The swelling of the hands and the gangrene increased, and the right arm and shoulder became involved through secondary infection. The temperature ranged from 99 to 103 F., and the general condition was atonic and flaccid. Blood examination showed: 4,220,000 red cells; 19,950 leukocytes, with hemoglobin 73 per cent. Two weeks later, the leukocyte count reached 32,400. The urine was normal. This child received forced feeding by Dr. Grulee, with surgical antiseptic dressings and sedative treatment, but died of bronchopneumonia.

Dr. Harry R. Foerster, Milwaukee: Some recent investigations made in England throw considerable light on this disease. Paterson and Greenfield have reported excellent pathologic studies on two cases that came to necropsy. From their observations, they concluded that this disease is polyneuritis, resulting from the toxemia of a specific infection. Their investigation showed a peripheral sensory polyneuritis in which there was extensive destruction of the myelin of the peripheral nerves, most intense distally and less intense proximally. There were also some cord changes: inflammation in the gray matter of the cord, in the motor nerve roots of the ventral horns and in the sensory roots. This inflammatory process they observed to originate from the nerve tissue instead of from lymphocytic invasion, and in the case of the nerve roots, the cells apparently came from the nucleated sheath of Schwann, while in the cord they were from the glia. From this investigation, they concluded that the process was a toxic condition in the nerve tissue rather than an infectious reaction. They originated the term "erythro-edema polyneuritis," which I think is a suitable name for the disease.

Dr. Butler has done well in divorcing this condition from acrodynia. There apparently is no relationship whatever, and repeated reports of this condition

under the title of acrodynia have led to confusion. Dr. Butler, in his pathologic report, gives the first information regarding the cutaneous histopathology of this disease. The term erythredema has been criticized because of the absence of edema, but Dr. Butler's examination showed that there is a pronounced edema of the corium and that the hyperkeratosis overlying it probably prevents pitting on pressure. There is only one other recorded cutaneous histologic report, and that is by Weber of England. The lesions in that case were examined only for evidence of tuberculosis, and the results were negative.

Dr. Henry E. Michelson, Minneapolis: I do not believe that the present day cases of acrodynia are the same as those reported during the French epidemic, which occurred about 1600. The epidemic cases occurred in large numbers, as many as 400 soldiers or prisoners (these cases occurred in people who were living in common quarters) being affected at one time. Gastrointestinal symptoms, nervous symptoms and cutaneous symptoms were frequently observed. A melanosis was also described, which, it seems to me, was similar to the war melanosis described by Riehl during the late war. Riehl's cases were supposed to be due to adulterated flour which was used in the war bread. It contained some substance which made the skin photosensitive, and the clinical picture closely resembled that described in the early French epidemics as acrodynia.

Dr. Clara M. Davis, Cleveland: I have had two cases, one of which resulted fatally. I wish to ask for some consideration of the relationship these cases bear to certain other conditions which we see much more commonly, such as other red, cold and painful swellings of the extremities. We have seen recently, at our clinic in Cleveland, girls approaching the age of 11 or 12 years, with red, cold, hands which were extremely tender and painful when they were placed in hot water. In fact, that is the complaint with which some of these children enter the hospital. In both of the cases I have seen, the symptoms have been greatly aggravated by putting the hands or feet in hot water, just as are chilblains. The only relief these children have had from this distressing sensation has been obtained by keeping the extremities in cold water.

In the last patient I had, the child had the disease from March until October. There was an interesting family history in that case. The father had suffered excruciatingly from chilblains during most of his life. From June to October, this child was given sodium iodid in fairly large doses, and coincidentally with the administration of sodium iodid, the subjective symptoms were more or less relieved, the child gained weight and the objective signs of the condition were improved. The treatment was intermittent in order to determine whether it had any effect. The mother begged to have it reinstituted, because of the increase in the child's comfort during the treatment.

Dr. Howard J. Parkhurst, Toledo, Ohio: Two years ago I saw a case of this disorder in an infant, following an attack of influenza. That patient presented all the characteristic symptoms which had been described, and in addition one prominent symptom which I have heard mentioned only by Dr. Oliver in describing his case, and that was the constant tendency to break off and pull out the hairs of the scalp.

Dr. Frederick D. Weidman, Philadelphia: Last year, the Australian dermatologist Wertenhall passed through the country, and told me that there were three outstanding symptoms of pink disease which would put us on the track to the diagnosis. The first is the swelling, the pink hands and feet;

second, the photophobia, and, third, the habit of burrowing the head into the pillows. In regard to the edema, it is not necessary that the skin should pit in all cases of edema, so the term erythredema is still applicable. There is such a state as "woody edema," and we get a better understanding of this from the microscopic examination. Thus, in some cases it is due to the presence of fibrin — a firm, coagulated substance. I have seen this in the thyroid glands, for instance. In dermatoses, the nonpitting forms of edema may occur because at the same time the edema develops, fibrillae become split off from the collagen bundles, and more or less clog the lymphatics and thus interfere with the egress of fluid which is responsible for the phenomenon of pitting. This wooden edema may explain why we do not have the phenomenon of pitting in erythredema.

Dr. John Butler, Minneapolis: Regarding the three cardinal symptoms designated by Dr. Weidman, the burrowing of the head in the pillow, of course, is due to the photophobia. Another predominating symptom emphasized by the Australian as well as by the American writers was the extreme mental irritability of the child. This should be regarded as one of the cardinal symptoms. With reference to the terminology, this is a good time to agree on a suitable name for this disease. Of course, we do not know the cause. The name suggested by Dr. Foerster "erythro-edema-polyneuritis" is rather cumbersome, although exact. In some of the recent dermatologic textbooks, the title "pink disease" is used. I believe Dr. Pusey and Dr. Sutton use this name in the newer editions of their books. "Pink disease" seems a rather unfortunate name, for the pink rash is not always present, and when present may be inconspicuous and capricious. As stated in my paper, the most constant and longest lasting symptom is the change in the feet and hands (erythredema) beginning about the second week of the disease and continuing throughout the course of the disease. This leads me to believe that "erythredema" is a most appropriate name for the disease, and I hope to see this title used as it accords Swift, who first described this entity, the honor and distinction of giving it a name.

XL. EPIDERMOLYSIS BULLOSA*

REPORT OF A CASE

T. J. CALHOUN, M.D., AND W. PORTER BROWN, M.D.

ST. LOUIS

Studies on the etiology of epidermolysis bullosa were made by Drs. M. F. Engman and W. H. Mook on a series of cases, and their findings were reported by them in 1905 and 1909.

Other cases were reported by Kanoky and Sutton in 1910 in *The Journal of the American Medical Association;* and by Weiss in 1917 in the *Journal of Cutaneous Diseases,* verifying their conclusions.

The report of the following case is offered as further substantiation of the theory advanced by them regarding the causative factor in this interesting and rare condition.

CASE REPORT

History.—On Feb. 29, 1924, a colored girl, aged 11, came to the clinic of the Barnard Free Skin and Cancer Hospital, complaining of "sores" on the forearms, hands, feet and legs.

According to the mother, the family history was negative, not one of the other children having been so affected. The mother said that this child was born six weeks before term. The past history of the patient was entirely negative for any serious illness.

The present trouble was noticed by members of the family when the child was only a few months old. They observed that slight trauma or friction on any portion of the body or limbs would be followed by the appearance of a blister containing either clear or blood-colored fluid, the contents depending on the severity of the injury. These lesions were not painful, but frequently after rupturing became infected, causing scab formation. They would heal, with soft superficial scarring and loss of pigment.

Examination.—This revealed numerous lesions in various stages, from newly formed bullae and vesicles to depigmented scars. These were located on the backs of the hands and fingers, wrists, elbows, anterior surface of the legs and about the ankles. Some of the bullae contained a clear serum, while a few on the hands showed a distinctly serosanguineous content. Others had ruptured and from staphylococcic infection had become crusted (Figs. 1, 2 and 3). The bullae were firm-walled and seemed to have been formed by an exudate which had dissected up the epithelial layers from the subjacent tissue. There was little tendency to spontaneous rupture.

The sites of old lesions were marked by nonpigmented scars, which were rather atrophic. The extent of scar formation was probably influenced by the pyogenic infection subsequent to a rupturing of the bullae and vesicles.

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*Studies, reports and observations from the dermatological departments of the Barnard Free Skin and Cancer Hospital and the School of Medicine, Washington University, St. Louis, Mo., U. S. A., service of Drs. M. F. Engman and W. H. Mook.

Fig. 1.—Epidermolysis bullosa of the hands.

Fig. 2.—Epidermolysis bullosa of the elbows.

There were slight atrophic changes in the skin of the dorsum of the hands and fingers, but the nails of neither hands nor feet showed involvement at this time. No intradermal cysts were found, but over the posterior surface of the proximal phalanges of all the fingers of both hands could be seen milia-like lesions.

A complete physical examination of the child revealed no definite pathology or abnormalities. The skin of the body appeared normal.

Two biopsies were secured, one specimen of skin being taken from the left scapular region and another from the arm nearer the lesions, yet in healthy

Fig. 3.—Epidermolysis bullosa of the hands and knees.

appearing skin. Sections of these were fixed and hardened in alcohol, then stained with Weigert's elastic tissue stain and polychrome methylene blue.

The epidermis in all sections was practically normal. There was no cellular infiltration about the vessels indicative of any kind of inflammatory process. The lymph channels and spaces showed a slight dilatation. Some elastic tissue was present in the upper and papillary portions of the derma, but was decidedly deficient as compared to the normal. This deficiency was especially marked in the lack of the fine fibrils which are seen in the portion connecting the epidermis. In the deeper portions, the elastic tissue was abundant, but the fibers were shorter and thicker and not as wavy as in normal skin.

MYCOTIC PARONYCHIA AND DERMATITIS

A HITHERTO UNDESCRIBED CONDITION APPARENTLY PECULIAR TO FRUIT CANNERS *

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AND
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Up to the time of Gilchrist's [1] description of blastomycosis, comparatively little was known regarding the possible etiologic rôle played by the blastomycete and smilar organisms in the production of dermatomycoses. With the way for such investigations thus opened, many etiologic questions concerning formerly obscure dermatoses have since been settled, and the pathogenesis of this group of organisms has assumed an increasing importance. A few years after the publication of Gilchrist's report, Schenk [2] described the clinical picture of the disease now known as sporotrichosis; and coincidentally appeared the consecutive studies of Ophüls,[3] Montgomery, Ryfkogel and Morrow,[4] and others, properly identifying granuloma coccidioides with this group of diseases. In addition to the foregoing, more recent investigations have revealed the etiologic rôle of organisms biologically related to the foregoing in the production of more superficial cutaneous manifestations. Among the early writings on this type of invasion are to be found the studies of Balzer, Gougerot and de Beurmann,[5] Rabinowitch [6] and Whitfield.[7] These were soon followed by the contributions of Phalen

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* From the Department of Dermatology and Syphilology, and from the Department of Pharmacology, University of Oregon Medical School.

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and Nichols,[8] and Chalmers and Christopherson;[9] and finally we are indebted for elucidating studies to the contributions of Schamberg,[10] Ormsby and Mitchell,[11] Guggenheim,[12] Fabry,[13] Hudelo,[14] Mitchell,[15] Greenbaum and Klauder,[16] Hicks and Chopping,[17] and others.

In the majority of the foregoing studies, an entirely new causative fungus or yeast was described, with the result that these now include a sufficient variety of associated clinical symptoms to merit their serious consideration in the diagnosis of a considerable percentage of both frequent and rare dermatologic pictures. In some, particularly those described by Gilchrist,[1] Schenk,[2] Lane,[18] Ophüls,[3] Montgomery, Morrow,[4] and others, there would seem to be a tendency toward both superficial and systemic involvement, including not only the clinical picture of extensive cutaneous infiltration and ulceration, but the far more serious aspect of systemic invasion and fatal termination. Fortunately, this does not hold for the majority thus far studied. Apparently, in the latter group mentioned, while widely diversified in distribution, the clinical pathology is represented for the most part by intertrigenous, interdigitally erosive, and vesicular and vesiculopustular forms of superficial dermatitis. The present study would seem to add another variety of this type of cutaneous invasion, occurring in the rôle of an occupational dermatosis, and presenting at least one site of predilection not hitherto emphasized as a part of the clinical pictures.

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REPORT OF A TYPICAL CASE

History.—Mrs. C., aged 45, American, entered the hospital, Jan. 23, 1924. The general history of her previous illnesses, pregnancies, etc., revealed nothing of significance bearing on the present trouble. She said that for the past five or six years she and all of her neighbors and friends had been employed in the canneries, approximately from June to October, and that the beginning of the present trouble had been coincident with the first year of this employment, and the condition had recurred every year since. Previous attacks had apparently been similar to the present one, including a "breaking out" between and on the fingers, "soreness and pus" about the nails and an occasional involvement of the forearms. She stated positively that occasionally there was slight trouble during the strawberry and apple seasons, but often during the pear season in the fall the condition was sufficiently severe to incapacitate her for

Fig. 1.—Original case cultured, unfortunately photographed after subsidence of acute symptoms, and showing for the most part the resolving paronychia. (Suggestion of previous interdigital involvement.) The involved thumb nails were lost several months previously; the present ones were reinfected.

work. These severe symptoms she described as characterized by severe "rawness" between the fingers and extremely painful involvement of the nails, resulting frequently in the loss of one or several on each hand, as was experienced in her case. She further stated that her husband and daughter, both similarly employed, presented similar symptoms. Finally, she volunteered that the condition was always expected among persons so employed, was of common occurrence, not only among persons in the cannery in which she worked, but also among her friends in neighboring towns, likewise engaged, and to all it was known as "fruit poisoning."

The general dermatologic examination was negative, except for involvement of the hands. The latter revealed, in the first place, the appearance of a

Fig. 2.—One of original cases cultured, unfortunately photographed after subsidence of acute symptoms, and showing for the most part the resolving paronychia. The involved nail was lost several months previously; the present one is reinfected.

Fig. 3.—One of the original cases cultured, unfortunately photographed after subsidence of acute symptoms, and showing for the most part the resolving paronychia.

Fig. 4.—One of the original cases cultured, unfortunately photographed after subsidence of acute symptoms, and showing for the most part the resolving paronychia.

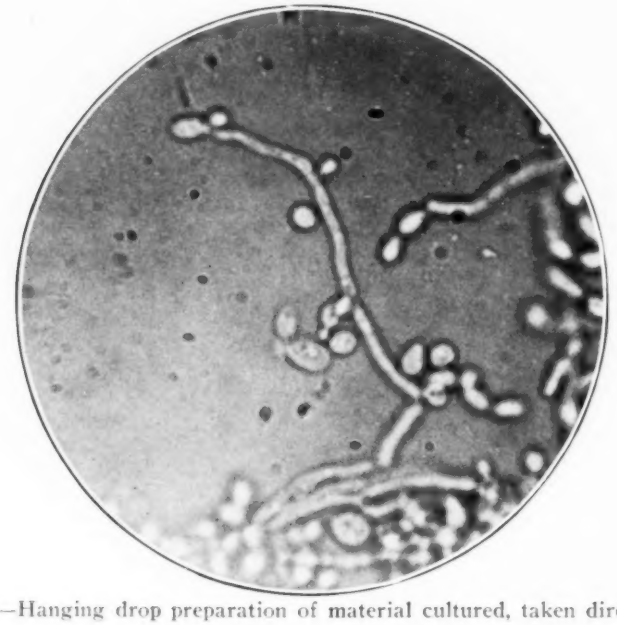

Fig. 5.—Hanging drop preparation of material cultured, taken directly from patient.

subsiding paronychia in various stages. The lateral and posterior nail folds were acutely inflamed, markedly swollen, and presented yellow crusts. Removal of the latter revealed a pustular exudate from the nail bed. The process was decidedly painful. The nails themselves were roughened and striated. On the interdigital aspects of the third and fourth fingers of one hand and on the web between, the epidermis was thickened, white and macerated in appearance, and presented here and there a definite subsiding vesicular process. In places where the epidermis was drier, the borders showed beginning desquamation. The web itself presented a rather deep fissure, apparently extending to the true skin beneath. Unfortunately, photographs were not obtained until later, and they then revealed only portions of the changes described in the foregoing (Figs. 1, 2, 3 and 4). Microscopic examination of the exudate and scrapings from the interdigital involvement prepared with sodium hydroxid

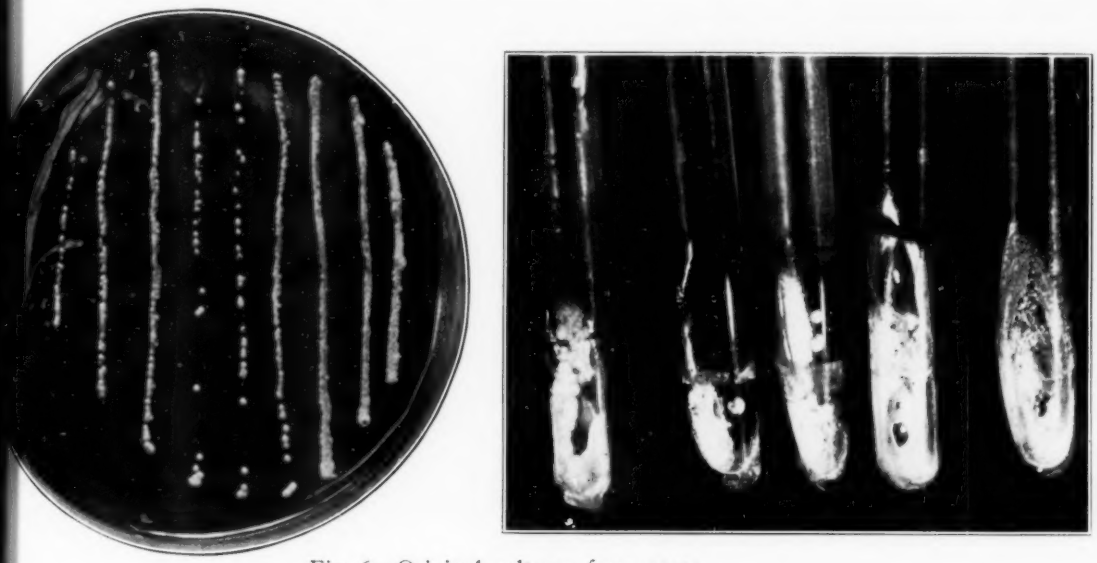

Fig. 6.—Original cultures from cases.

revealed uniformly in every case examined the findings shown in Figure 5. In other words, direct microscopic examination of the material from this and similar typical cases revealed constantly numerous double contoured yeastlike organisms, and here and there budding forms, interspersed with rather thick, solid mycelial threads.

CULTURAL EXPERIMENTS

A detailed discussion of cultural characteristics, including the behavior of the organism on various mediums, and its proper generic classification must await the result of experiments now in progress. Sufficient at present to say, material taken from several patients examined (all presenting similar lesions and giving comparable histories), transferred to glucose agar and the other usual mediums, resulted, with but slight occasional contamination, in the growths pictured in Figure 6.

Stained preparations from these (Fig. 7) revealed organisms with a morphology identical with the original preparations.

ANIMAL INOCULATIONS

For these, two rabbits were used. To Rabbit 1, 1 c.c. of a heavy saline emulsion of the material mentioned in the foregoing was given intravenously in the ear. In Rabbit 2, 1 c.c. of the emulsion was injected subcutaneously into the flank, 0.1 c.c. injected subcutaneously into the right ear, 0.4 c.c. massaged well into the skin of the left ear, and 1 c.c. massaged into a shaved area on the back. The injections

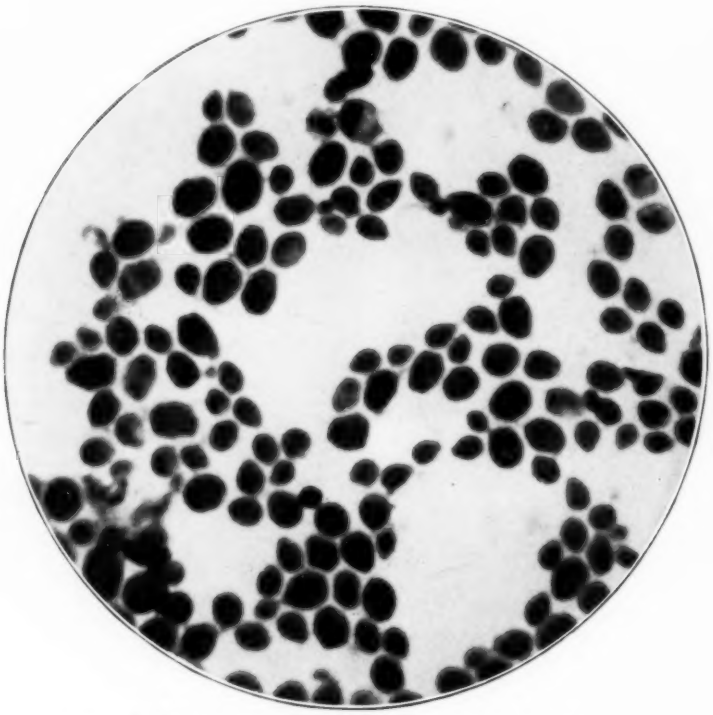

Fig. 7.—Stained preparation from original cultures.

were accomplished under the usual aseptic precautions, the inoculations by massage after a preparation by shaving and cleansing with sterile water.

Results in Rabbit 1.—This animal (which had received the intravenous injection) within twenty-four hours presented the symptoms of a rapidly progressive fatal infection. At the end of this period, the fur became shaggy, the animal appeared inactive and was obviously ill. These symptoms increased in severity up to the time of death, which occurred approximately seventy-two hours following the injection. At

necropsy the most marked and apparently only significant gross pathologic lesion was that of widespread bronchial pneumonia. Microscopic examination of teased lung tissue, digested with sodium hydroxid, revealed large numbers of organisms similar to those injected, while stained sections presented the picture of consolidation, being due almost entirely to invasion by the same organisms. Although the kidneys and liver presented no gross pathologic change, sections of them likewise showed multiple foci of double contoured yeastlike forms (Figs. 8, 9 and 10). Cultures on glucose agar from the same material resulted in pure

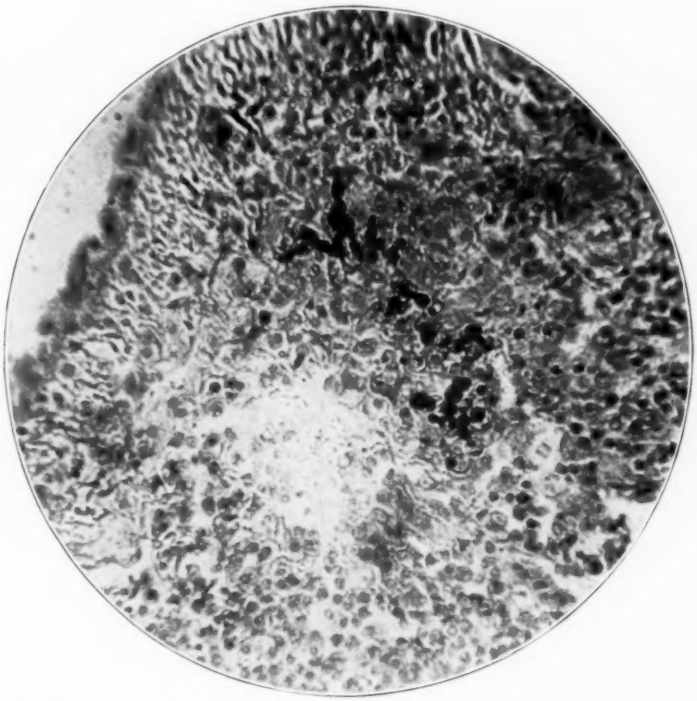

Fig. 8.—Section of lung from Rabbit 1. Note double-contoured organisms.

cultures of the same organism. (These cultures were used for further inoculations cited below.) Cultures from the heart blood were negative.

Results in Rabbit 2.—Within forty-eight hours following the cutaneous inoculations with the emulsion, definite infiltration was palpable, and a rather marked inflammatory reaction established. By the fourth day, the sites of inoculation presented definite nodular swellings, the lesion on the flank being approximately the size of a hazelnut. A day or so later there was fluctuation, followed by spontaneous rupture, the resultant purulent discharge containing numerous budding yeast forms, together with cocci, and other elements of secondary infection. The

nodule on the ear, up to the time of writing (approximately six weeks), had not ruptured. Each presented a low-grade, inflammatory, circumscribed nodular infiltration (Figs. 11 and 12). On the animal's back, where the emulsion was massaged into the skin with a minimum of

Fig. 9.—Section of kidney from Rabbit 1. Note double-contoured organisms.

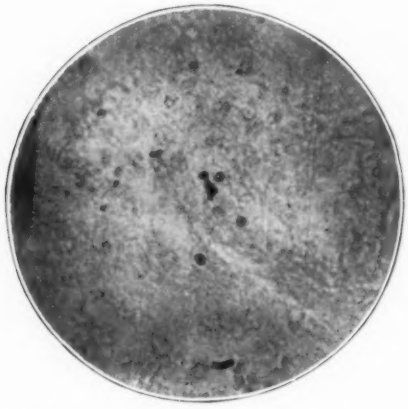

Fig. 10.—Sections of liver from Rabbit 1. Note double-contoured organisms.

trauma, no change was visible until the fourth and fifth days. At this time a slight erythema was evident, and the day, after a process of superficial desquamation began, with here and there extremely minute vesiculation. Microscopic examination and cultural study of these scales

Fig. 11.—Rabbit 2, showing result of subcutaneous inoculations. Nodular infiltrations.

Fig. 12.—Rabbit 2, showing result of subcutaneous inoculations. Nodular infiltrations.

revealed large numbers of the organisms, and this has been a constant finding up to the present time. The lesions persisted as vesicular and vesiculocrusted and scaly patches of subacute, slightly erythematous dermatitis (Fig. 13).

FURTHER INOCULATIONS

Finally, inoculations on the human skin were undertaken. Small sites on the dorsi of our own hands were chosen, and cleansed with alcohol. The epidermis was then removed by gentle scraping with a

Fig. 13.—Rabbit *2*, showing lesion resulting from inoculation by scarification. Erythematovesicular dermatitis.

sterile scalpel until the papillae were evident; a drop of sterile Ringer's solution was placed on the abrasion, and a loop of solid growth rubbed in for two minutes. The material used was a pure culture of the growth taken from the lung of Rabbit 1. Following the temporary erythema resulting from the foregoing manipulation there were no signs of activity, except occasional pruritus, until the third day. At that time, one hand presented a closely agminated group of brightly erythematous, pinpoint-sized papules, each of which a day or so later had become capped by a tiny vesicle. The other hand differed only in that the lesions were confluent, and presented a dime-sized, slightly raised,

erythematous patch of vesicular dermatitis (Figs. 14, 15 and 16). From each of these lesions, by the usual use of sodium hydroxid, organisms morphologically indistinguishable in every detail from those obtained from the patient on entrance to the hospital were removed (Fig. 17). This has been repeated many times, and has included cultural trans-

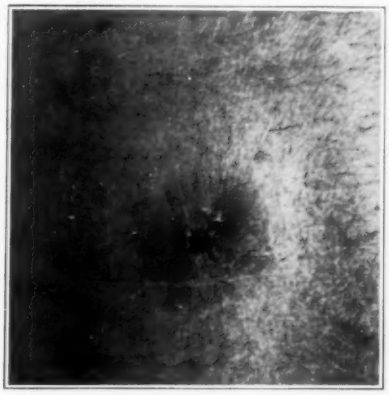

Fig. 14.—Papulovesicular dermatitis, resulting from scarification inoculation of material from rabbit's lung.

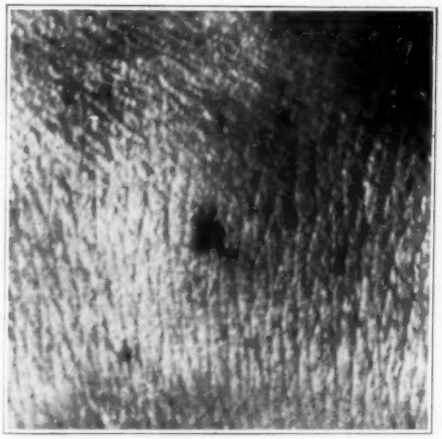

Fig. 15.—Papulovesicular dermatitis, resulting from scarification inoculation of material from rabbit's lung.

plantation. The subsequent course of these lesions has been that of gradual involution, apparently due to frequent use of soap and water, together with the usual application of antiseptics several times daily. Even four weeks later occasional yeastlike forms were obtainable from the scrapings of clinically inactive lesions.

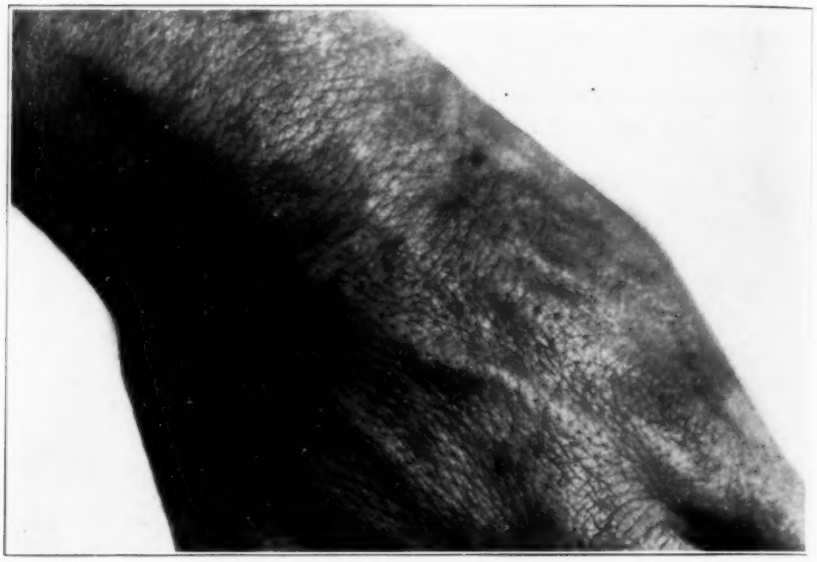

Fig. 16.—Papulovesicular dermatitis, resulting from scarification inoculation of material from rabbit's lung.

Fig. 17.—Interdigital erosion, resulting from surface inoculation of material from rabbit's lung.

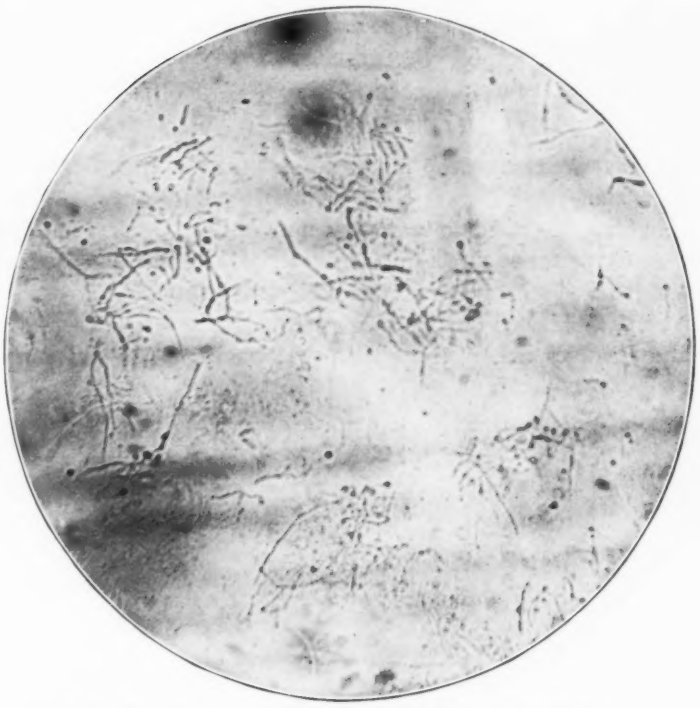

Fig. 18.—Preparation of scrapings from hand lesions.

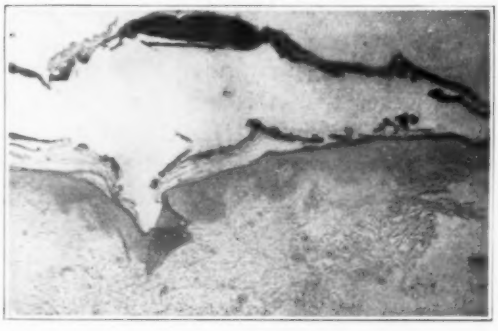

Fig. 19.—Section from lesion on hand, showing typical vesicle and slight inflammatory reaction.

As a further check on the experiments just related, inoculations with ordinary baker's yeast have been made under exactly similar conditions. These inoculations, now several weeks old, have shown no signs of clinical activity nor has the organism been recovered by repeated examination of scrapings.

PATHOLOGY

For obvious reasons, deep inoculations have not been undertaken in the human subject. However, lesions produced in ourselves after the manner before described have been removed by biopsy for histologic study. A characteristic section is shown in Figure 18. Apparently, the most marked change is of an inflammatory nature, resulting in vesiculation. So far as our sections revealed, this vesiculation is superficial, and involves chiefly the upper epidermal layers. An interesting

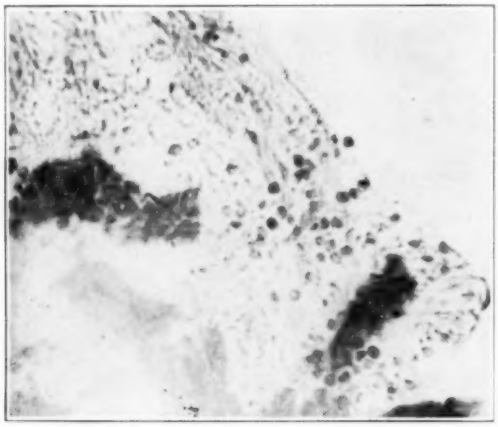

Fig. 20.—High power appearance of vesicle contents, showing yeastlike organisms.

finding is the large number of organisms present in the contents of the vesicle (Fig. 19). Other than this superficial involvement, there is apparently little change in the epidermis. In the structures of the corium, the changes observed are those of a mildly inflammatory process, including slight vascular dilatation, and the usual concomitant collection of cellular elements in the papillary and subpapillary layers.

SUMMARY

In addition to the foregoing observations, further data were sought by interviews with employees other than those before cited, with attending physicians and nurses, and by questionnaires forwarded to similar institutions in more remote districts. While complete data are not yet at hand for a discussion of the geographic distribution of the

disease, nor details regarding possible variations and frequency in different localities, there seems to be sufficient evidence for a brief discussion of the condition based on available facts.

Apparently for the past five or six years at least, and perhaps longer, a cutaneous disorder commonly known as "fruit poisoning" has existed among the workers of certain canneries of the Northwest. The incidence is estimated as high as 33.3 per cent. of those employed. While the name implies an association with any of the fruits handled, continual emphasis is placed on the almost explosive epidemic-like outbreaks occurring at the time the pears pass through these factories. The symptomatology is that of a rather marked paronychia, characterized by inflammatory reaction, pain, and the actual loss of one or more nails. In other words, the condition is sufficiently severe to incapacitate a certain percentage of employees for indefinite periods. In addition, maceration, vesiculation and fissuring between and on the interdigital aspects of the fingers is frequently found, together with occasional patches of erythematovesicular dermatitis on the hands and forearms. The course is acute during the pear season. The continual immersion of the hands in the juice of the fruit, and the trauma incident to the peeling and coring processes apparently make for continual reinoculations and exaggeration of the symptoms described. On the other hand, after the factories are closed, and the employees resume other occupations, the dermatitis gradually subsides, with occasional exacerbations. The paronychia may progress to the extent of loss of nails, followed by resolution, while in some patients the condition finally seems to clear entirely under the use of various home and professionally prescribed remedies.

Finally, in the light of clinical and statistical data at hand, and in view of the experimental facts related above, it would seem that one has in the so-called "fruit poisoning" a clinical entity belonging to the group of dermatomycoses, occurring as an occupational dermatosis, and presenting, in addition to the usual symptomatology of allied conditions, a paronychia of a severity meriting economic consideration and further investigative study.

CONCLUSIONS

1. An occupational dermatosis, commonly known as "fruit poisoning," has existed in certain sections of the Northwest for a number of years.

2. Cultures from several patients have uniformly revealed pure cultures of a yeastlike organism.

3. Animal and human inoculations with organisms thus obtained result in a clinical picture practically identical with known mycelial infections of the skin and exactly corresponding to the symptoms of patients suffering from the disease.

4. In spite of the known ubiquity of various forms of yeasts, especially in the presence of food sugars, it would seem that so-called "fruit poisoning" may be properly classified with the now known dermatomycoses.

5. A discussion of the suggestive association of the disease with the handling of certain fruits, the proper generic classification of the causative organism and the therapeutic management of the infection must await the result of studies now in progress.

DISCUSSION

DR. JOSEPH V. KLAUDER, Philadelphia: I was particularly interested in Dr. Kingery's presentation in view of the work of Dr. Greenbaum and myself. We studied and reported the cases of about ten patients with a characteristic eruption between the fingers, and since then have studied about ten more cases. None of these patients presented an involvement of the nails. We found four types of the yeast fungus, and, like Dr. Kingery, we were unable to classify them accurately except to place them in a generic group. It would take a man like Ricardo, who has written eight volumes on fungi to classify the organisms accurately. One definite thing we obtained was this: In all our patients, one or the other of four types of yeast fungi was obtained from the lesion on the skin. One or the other of these four types of yeast we obtained from the normal skin of a number of patients. One, when cultivated presented a white appearance similar to that which Dr. Kingery has just described. I would like to know whether he obtained just this one type.

DR. J. FRANK SCHAMBERG, Philadelphia: I cannot resist saying a word in regard to the intrinsic merit of the investigation. This is the type of work that will continue to reflect credit on our Association. It has been carried out in a thoroughly scientific manner and I have no doubt that in due time Dr. Kingery will be able to inform us of the genus of the organism obtained.

I would suggest that if he has difficulty in identification, he may obtain aid through the proper department of the government in Washington, where there are experts on all sorts of parasites.

DR. LYLE B. KINGERY: Regarding the possibility of more than one type of yeast being present, so far as our observations have gone, the cultural characteristics have been uniform in all cases. As we all know, it is extremely difficult to classify properly this type of organism, but this is at present being undertaken, and we hope at a future time to give it a proper generic name.

We have already written to the government describing the peculiar association of the disease with the handling of pears, but they have informed us that they know of no organism characteristically associated with this fruit that might be a cutaneous invader.

Experimental work is now under way directed toward the prevention and cure of the disease, a report of which will be made as soon as a proper amount of data is accumulated. From present indications we expect to be able to report a proper solution of the therapeutic question from an economic standpoint.

MULTIPLE HEMORRHAGIC SARCOMA OF KAPOSI*

HISTOLOGIC STUDIES OF TWO CASES, ONE DISCLOSING INTESTINAL LESIONS AT NECROPSY

G. J. DILLARD, M.D., AND F. D. WEIDMAN, M.D.
PHILADELPHIA

The survey of the literature which our cases caused us to make led us to believe that multiple hemorrhagic sarcoma of Kaposi has received attention far beyond what might be expected. Thus, being rare and withal so benign as regards life and death (usually), it cannot be considered as one of the dermatoses of outstanding clinical importance; and yet we find that those contributing to the literature include a large proportion of our most distinguished dermatologists, and that they have given their best thought to the comparatively small number of cases which comes under the care of any one of them.

Whatever the explantation may be, the result is that the disease has been sufficiently described and discussed, and a comprehensive review of the literature by us would be superfluous. Accordingly, what we shall have to say in the way of summaries and reviews will be limited to the visceral and other uncommon or special phases on which our cases more particularly have a bearing, and will be submitted after relating the case histories.

REPORT OF CASES

CASE 1.—Abraham F., aged 66, a Russian Pole, had had multiple hemorrhagic sarcoma for five years. Only the legs were affected. They were elephantiasic, the skin being warty, brown and extraordinarily and diffusely thickened. In addition to the usual pigmentary and hemorrhagic splotches, the skin surface exhibited numerous superficial cavernous spaces. These varied in size up to that of a pea, sometimes contained blood and sometimes more or less bloodstained or clear serum; and after slowly expressing the fluid by pressure, the finger could pass into a pitlike depression of the cutis which had a sharp salient margin. The fluid returned slowly after removing the pressure. The heaviest infiltrates (and the surface of the older lesions was verrucous and hyperkeratotic) occurred on the ankles posteriorly. On the whole, the disease was much more exaggerated posteriorly than anteriorly (hypostasis) as the patient reclined during his hospital stay. He had gone the rounds of Philadelphia dispensaries, and the diagnosis was concurred in at a meeting of the Philadelphia Dermatological Society.[1]

The blood Wassermann test was negative; there was a trace of albumin and a few broad hyaline and granular casts in the urine and a moderate erythro-

* From the Laboratory of Pathology, Philadelphia General Hospital and the Laboratory of Dermatological Research, Department of Cutaneous Medicine, University of Pennsylvania.

1. Weidman, F. D.: Case Presentation, Arch. Dermat. & Syph. **7**:120, 1923.

cytic anemia (red blood cells, 4,000,000; white blood cells, 9,900; hemoglobin, 56 per cent.; polymorphonuclears, 57 per cent.; lymphocytes, 31 per cent., and eosinophils, 6 per cent.).

Treatment was without effect except so far as reduction in the size of the leg was concerned. Thus, one dermatologist who had given upward of forty roentgen-ray treatments, stated that the leg was materially reduced in size; and during his stay in the hospital at rest it was improved in the same sense and in that the bullae were much less blood stained. On the basis that the condition was granulomatous, but otherwise wholly empirically, we gave thirteen injections of antimony and potassium tartrate (tartar emetic) intravenously but without benefit.

The patient passed from our observation, and is reported to have died one year later. Necropsy was not performed.

During life the skin was examined as follows. The surface was scraped until serum exuded. The scrapings were prepared as smears, fixed with moist corrosive sublimate-alcohol and stained by Giemsa's method, the preparation not being allowed to dry at any time (technic for protozoa). The results were negative for suggestive micro-organisms. An early lesion 2 mm. in diameter was similarily fixed, embedded in paraffin and sections therefrom stained by Giemsa's method, with the same results as above so far as micro-organisms are concerned.

Two other lesions of the skin were also excised—one an early lesion and the other an old lesion.

The histologic findings in the foregoing three specimens of skin will be recorded later in connection with those of Case 2. Sections stained with thionin brought out nothing additional. The Prussian blue test made the pigment granules strongly blue.

Case 2.—Bernard W., an Irishman, aged 82, a laborer, had been an inmate of an old men's home for several years. According to the authorities there, his cutaneous disease began six years before in the form of a blood blister on the heel. A year later, the condition became bilateral and the disease began to affect the hands. There were no definitely relevant subjective symptoms. His left eyeball had been lost as the result of trauma.

He was admitted to the Philadelphia General Hospital at the point of death with bronchopneumonia. On physical examination, besides the cutaneous changes, a nodule was felt under the skin of the neck posterior to the left sternocleidomastoideus muscle. It measured 1.5 by 1 cm., was freely movable under the skin, which was not discolored, and was considered to be an enlarged lymph node, which subsequent histologic examination confirmed. The visible mucous membranes appeared normal.

Cutaneous Appearance.—Several scores of nodules were present. Most of them were on the anterior aspects of the extremities, but there were four recent ones in the rim of the right ear and one or two on the backs of the legs and thighs. They were much larger and more numerous on the ankles, knees and backs of the hands. Younger examples resembled small hematomas, being firm, black and smooth surfaced, but between them a brighter red, more diffuse staining was made out, sometimes giving a stippled effect, and the skin here was pigmented. Older lesions ranged up to 3 cm. in diameter, were covered by more or less verrucous hyperkeratosis (grater like), and on removing this a purplish-black basis was revealed. The skin over both shins was thin, diffusely and deeply pigmented, and covered by a thin papery scale, even in the absence of any notable nodular involvement. The nails were markedly clubbed.

Fig. 1 (Case 2).—Verrucous and hyperkeratotic lesions on feet. Much of the underlying hyperpigmentation and hemorrhage is hidden by the accumulations of keratin.

Fig. 2 (Case 2).—Angiomatous lesion on back of hand. There are some flatter and more pigmented ones elsewhere on the back of the hand.

The patient died twenty-four hours after admission and necropsy was performed three hours later.

Clinical Summary.—Considered as a whole, this was a typical case of Kaposi's sarcoma. It should be considered as a rather advanced and extreme example, but not of the grade of our Case 1. The points deserving special comment were: (1) the nodule on the neck, and (2) the pigmentation of the shins in the absence of any tumors—the latter not so readily explained on a tumor basis as on circulatory weakness.

Necropsy.—Findings which may be considered irrelevant to the cutaneous disease, but which still should be recorded were: adhesions around the gallbladder, an old obliterating right-sided pleurisy, advanced pneumonia of the left lung and a small benign hypernephroma of the right kidney. The thyroid, suprarenals and testicles showed no changes other than the atrophy, sclerosis, etc., which might be expected in a senile subject.

There were two groups of morbid anatomic changes which require particular attention in the light of Kaposi's disease. The first were circulatory, and deserve more than passing comment because Kaposi's sarcoma occurs (cutaneously) in hypostatic parts and exhibits such marked angiectasias. The second were the sarcomatous ones.

Circulatory Group: There was marked hypertrophy of the heart (425 gm.). Sclerosis of the aortic and mitral valves and chronic interstitial myocarditis were present.

There was advanced arteriosclerosis of the aorta, with roughening and calcification of the lining. The right iliac artery contained an atheromatous plaque and a small "thrombus."[2]

There was passive congestion of the spleen and liver.

These are grouped as evidence that a chronic circulatory fault must have been existent, and such a fault must be reckoned with, if no more than as a predisposing factor, when dealing with a chronic ectatic and hemorrhagic state like Kaposi's sarcoma. It matters not that the cardiovascular disease was a concomitant of senility, it was coexistent with the cutaneous disturbances, and that is sufficient, for in point of duration, the circulatory lesions were of such grade, and occurred in such a senile subject that it was most certainly existent at the time the cutaneous disease began, i. e., six years previously, or when the patient was 76 years old. Farther than this we cannot go in the linking up of the general circulatory and the cutaneous disturbances.

Sarcomatous Group: These consisted in general of soft, bloody tumefactions in the urinary bladder, submucosa of the stomach and intestine and a generalized enlargement of lymph nodes, mostly of the ones regional to the gastro-intestinal tract and extremities.

There were two subspherical nodules in the stomach, 10 and 20 mm. in diameter, in the cardiac end of the greater curvature. They projected but slightly above the surface, were pultaceous, reddish black and were evidently limited to the lining parts of the viscus. No extension into the muscular coats could be supposed, and there were no signs of the tumor externally. The smaller had a smooth surface, but the larger was shaggy as though superficially digested. Yet there was no recognizable blood staining of the gastric contents. There were no adhesions of the underlying peritoneum to adjacent structures.

There were altogether more than a hundred brown or blood-red tumors distributed from the duodenum to the anus. They were perhaps more numerous

2. This was lost before it could be examined histologically for sarcoma.

in the duodenum than elsewhere, but were plentiful in all segments of the bowel; their positions could be readily identified externally by the brown discoloration which shone through the normal peritoneal covering. They ranged from 2 to 15 mm. in diameter, extended transversely around the bowel, and were of the same general character as the smooth-surfaced one described in the stomach; that is, none were ulcerated, although it was difficult to understand how the membrane between the lesions and the lumen of the bowel could be so thin without rupturing and producing some blood-staining of the intestinal contents, especially where there were so many tumors present. Some of the tumors, more particularly those at the tips of the rugae, were pedunculated. In no case were there adhesions of the underlying serosa, and the tumors were always encapsulated. There was nothing widely invasive about the lesions.

The mucosa of the rectum, in addition to containing tumors, was diffusely and finely stippled by pale brown pigment, recalling the pseudomelanosis of Pick. There were no hemorrhages anywhere in the gastro-intestinal tract.

Fig. 3 (Case 2).—Intestinal lesions as seen through the peritoneal coat at necropsy. The transverse trend of the lesion may be gathered from the indentation which the illustration brings out in the lesion in the foreground.

All of the mesenteric and mesocolic lymph nodes were reddened and enlarged up to two or three times the normal size. They were moderately softened, but maintained their normal contour. The section surface in some was hemogeneously red and in others blotched with red. The ones in the lesser omentum were far larger than elsewhere and so soft that when first observed they were ruptured —doubtless by the stresses produced postmortem in separating the viscera for inspection. The largest mass was as large as a little finger and appeared to be the product of the fusion of several nodes. The material saved for histologic examination represented the more solid parts of this semifluid, chocolate brown material, and it was in this that fungus structures were later found microscopically. The nodule of the neck which was palpated clinically had the general character of the firmer hemorrhagic lymph nodes elsewhere. The axillary and femoral nodes were of similar character.

Embedded in the areolar tissue of the heart to the left of the anterior coronary artery, and doubtfully extending into the myocardium, there was a

soft, dark red tumor, 2 or 3 mm. in diameter, which was evidently of the same character of the firmer hemorrhagic lymph nodes elsewhere. The axillary and femoral nodes were of similar character.

Minute, vaguely outlined rusty brown discolorations were noted on the cut surface of the testes and between the several tubular structures of the epididymis. With the naked eye, they could not be distinguished from blood pigmentation. The bladder lesions were of the same character.

Histologic Examination.—The cutaneous findings common to the two cases will be recorded together, following which the differences will be listed. Changes in the epiderm consisted only of a hyperkeratosis and some acanthosis, and comparison of younger and old lesions showed that this was only a secondary development. The hyperkeratosis was not surprising in view of the epidermal hyperplasia which so commonly occurs over other blood accumulations (angiokeratoma, hemangiomatous nevi).

The essential seat of the disease was in the corium. It began in the uppermost parts, including the pars papillaris, as a capillary hyperplasia. The lesions were not circumscribed. There were at least seven tissue changes.

1. Capillary Hyperplasia: In the early lesions the capillaries were of approximately normal width, and were most numerous in the pars papillaris. Their general trend was perpendicular to the surface, but in deeper parts they became moderately ectatic, and finally intercommunicated with broad spaces immediately beneath which we consider lymphatic, and into which hemorrhage had occurred.

2. Ectasia of Endothelial Lined Spaces: Some of these were lymphatic (as shown by general parallelism with collagen bundles, vague endothelial linings and continuity with obvious lymphatic clefts)[3] and some blood—one imparting the bullous and the other the bloody characters to the disease clinically.

3. Hemorrhage: Masses of red blood cells were seen only in the upper parts of the corium, particularly in the pars papillaris. In deeper positions, they occurred only scatteringly or in small clumps.

4. Pigmentation: Pigment occurred significantly in two strata. The first was in the pars papillaris in relation to the masses of red blood cells. The second was at the deepest level of the corium, particularly around the appendages, whence the pigment had probably been conveyed from the more superficial parts via the lymphatics. The intervening fibrous and inflammatory portions of the lesion were almost free from pigment. In both positions, the pigment occurred within phagocytes as well as in independent, finely granular form, and ranged in color from yellow to golden brown. It was not as abundant in Case 1 as in Case 2, perhaps because the looser, more edematous state of the skin favored absorption or removal otherwise.

5. Cellular Infiltration: This was preeminently lymphocytic, together with the congener plasma cells. Leukocytes were scarce, mastcells fairly numerous. In Case 2, this infiltration was decidedly in the background, and was rather

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3. It requires some discrimination to make this distinction, but we are satisfied that it is justified. The appearances described here would be welcomed by those who oppose the "budding" theory of capillary regeneration (or hyperplasia) and who hold that the newly formed vessel proceeds via the development of endothelial cells along preformed lymphatics. On these premises, the bullous phase of Kaposi's sarcoma might be considered as a vice of the lymphatics—an anomalous state, perhaps determined by more or less local congenital peculiarities which are individual to the patient, wherein they became unduly broad under the urge of capillary hyperplasia.

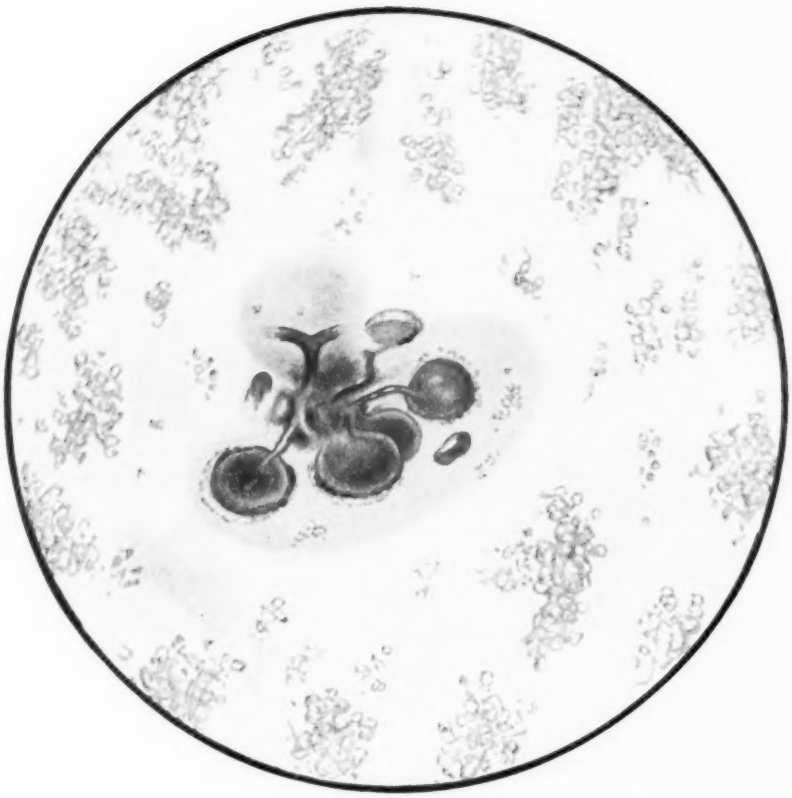

Fig. 4.—Cluster of mycelium and chlamydospores within a giant cell. The section was prepared by the Prussian blue method for the detection of iron, and was not treated by any blue dyestuff. Both the cytoplasm and the nuclei of the giant cell stained faintly blue, hence the nuclei do not stand out. The minute granules adherent to one chlamydospore have the same color as the hemosiderin granules farther out; and nuances between this and the blue of the positive Prussian blue test can be traced.

limited to deeper parts of the corium in association with certain fibrous hyperplastic regions. In Case 1, one of the early lesions displayed notable perivascular accumulations wherein the blood vessel was so obscured as to be recognizable only after some search.

6. Cellular Hyperplasia: Two kinds of cells were concerned in this process —white fibrous connective tissue cells and endothelium. The former occurred more particularly in positions adjacent to lymphocytic infiltrates and positions where there was also an endothelial hyperplasia, i. e., in relation to ectasias. The fibrous hyperplasia was expressed in the form of multiplication and swelling of the nuclei without any important disarrangement or disruption of the collagenous bundles. The grade of nuclear swelling varied from nil up to the proportions of endothelial nuclei, and when this occurred near vessels it became impossible

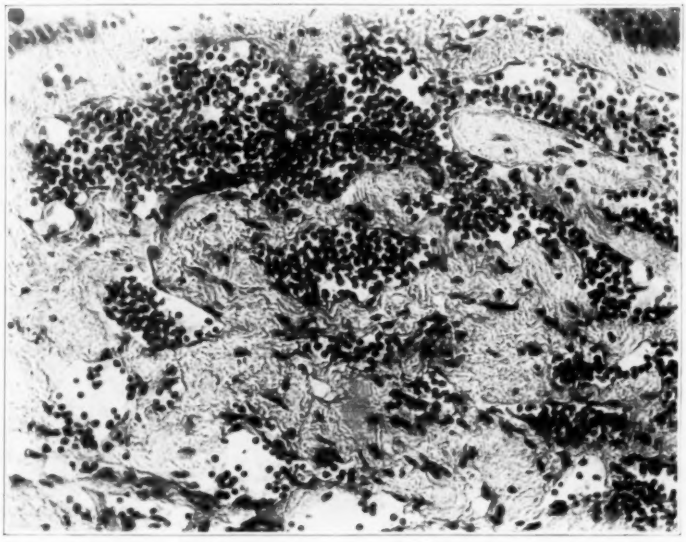

Fig. 5.—Skin. Showing hemorrhage into lymph spaces. The collagen bundles are uniformly dissected apart, without losing their normal trabecular arrangement. A blood-vessel hyperplasia would not be distributed in this uniform manner.

to distinguish whether we were observing a fibroblastic or an endothelial hyperplasia which occurred within and proceeded from blood vessel linings. The linings of vessels of all calibers—capillaries, arteries and veins had swollen and proliferated nuclei; in Case 1, but not in Case 2, these were continuous with masses of similar or even larger cells which thus came to constitute solid masses —microscopic tumors, which will be more fully described later.

7. A minor, and doubtless secondary, change occurred in Case 1, consisting of small foci of collagenous degeneration within the foci of lymphocytic infiltration. The fibrillae here were granular, discontinuous and inclined to the basic tint in hematoxylin and eosin sections.

Special Histologic Findings in Case 1: We must separately describe certain nests of cells which lay adjacent to some of the blood vessels deep in the corium and which were not seen in Case 2. These were sharply circumscribed and con-

tinuous with the hyperplastic lining cells of capillaries peripherally, which thus had the apperance of terminating within the nest; the cells were in direct contact with each other; i. e., there was no intercellular substance. Certainly they were endothelial rather than fibrous. The cells themselves were large, rounded or mutually compressed, and the cytoplasm was so pale or rarefied in appearance as to suggest a hydropic state. The nucleus was large, ellipsoidal, and comparatively poor in chromatin. *Rarely fragments of red blood cells were seen within the cytoplasm, either surrounded by a vacuole or not.* The character was certainly that of endothelioma rather than of the preeminently vascular sarcomas.

Discussion and Interpretation of Cutaneous Histopathology.—The basal change was essentially a hyperplasia of endothelium, entailing an increase in size and numbers of capillaries. After this a moderate round cell infiltrate and a surprisingly early ectasia of lymphatic spaces occurred. In terms of general pathology (the grade of vascular hyperplasia being beyond the realms of usual "granulation" processes), this might be called a telangiomatous hyperplasia, just as one speaks of an adenomatous hyperplasia when mucous membranes take on an adenomatous appearance in the presence of evident chronic inflammations.

Older lesions exhibited in addition: (1) a progression of the endothelial hyperplasia first to the proportion of nodes, and later a regression in which the cells came to appear as narrow spindle cells—more like spindle cell sarcoma; (2) accentuation of the lymphangiectatic features to the proportion of cavernous spaces which contain a blood intermixture; (3) small foci of collagenous degeneration.

There must be some more subtle influence than pressure to explain the lymphangiectasia at such an early period in the development of the lesion, but just what it is we are unable to say. Perhaps there are endotheliolytic agencies at work. It is also remarkable that there is not more white fibrous tissue hyperplasia; the bulk of the thickening seen clinically is referable more to edema and cellular infiltration than to fibrosis.

As far as the skin in our sections was concerned, the changes could not be considered sarcomatous. It is true that nests of cells in Case 1 had a malignant *appearance;* but this of itself does not constitute sarcoma. The qualities of invasiveness and magnitude of growth, etc., were quite lacking. Consequently, the designation sarcoma is not considered proper.

HISTOPATHOLOGY OF THE VISCERA

A marked sclerosis of the aorta was shown.

In some areas of the thyroid the acini were markedly atrophic and the interstitial tissue hyperplastic.

In the liver the picture of an atrophic cirrhosis of advanced type was presented, plus an extreme infiltration of hemosiderin. All parts of the

liver were thus affected—interstitial, parenchymatous and Kupfer cells. The latter were often expanded to many times their normal size, were conspicuous even under the lower powers of the microscope, and frequently occurred in groups.

Pigmentary changes in the spleen were not commensurate with those seen in the liver—they were no more marked than those commonly seen in senile subjects. Of the splenocytes, an unusual proportion were of the young type; mitoses were not unusual, and sometimes these

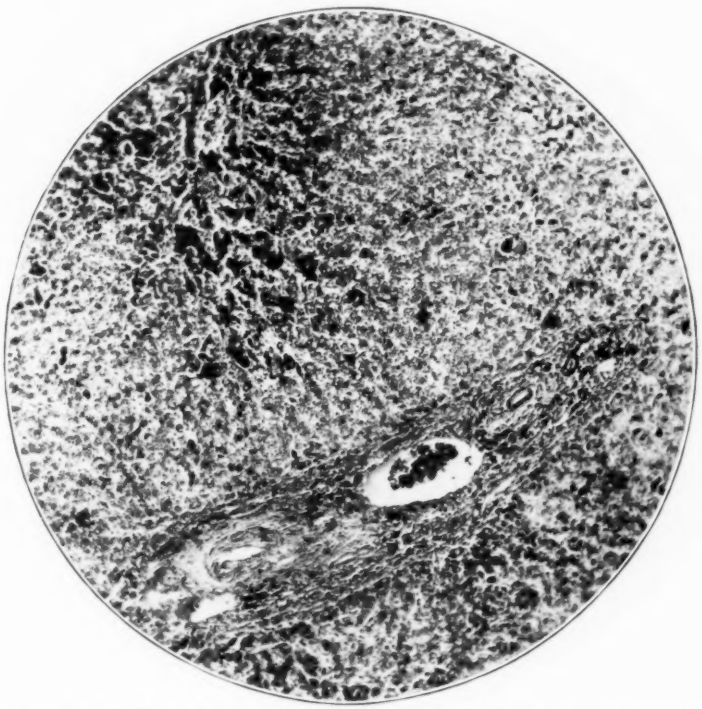

Fig. 6.—Liver. The pigmentation occurred particularly at the more central parts of the liver lobule. The larger of the black structures are Kupfer cells which have become hugely enlarged by phagocytosis of pigment. A chronic interstitial hepatitis is indicated in the perilobular fibrous tissue—it is scarcely of the grade of a frank cirrhosis in this illustration.

young forms of cells occurred in clusters. Splenic nodules averaged smaller than normal. The young and mitotic forms mentioned above occurred plentifully in them, more particularly at the periphery.

In the testes, in addition to an extreme interstitial overgrowth and an extensive senile atrophy of the seminiferous tubules there were clusters of pigmented cells between the tubules which we regard as involuntary muscle. These cells were so degenerate and so vaguely outlined, however, that we cannot be certain of their identity.

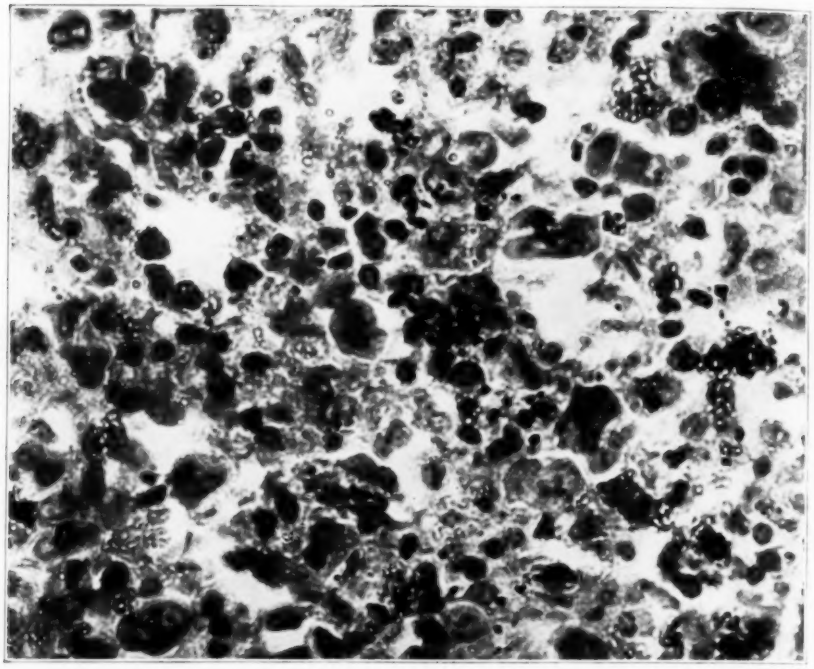

Fig. 7.—Spleen. There is a hyperplasia of endothelial cells here just as there was in the skin. They appear as large elements with irregular contours and with one or two nuclei. The clusters of minute, vacuole-like structures are pigment granules. Their refractility accounts for this effect on the photographic plate.

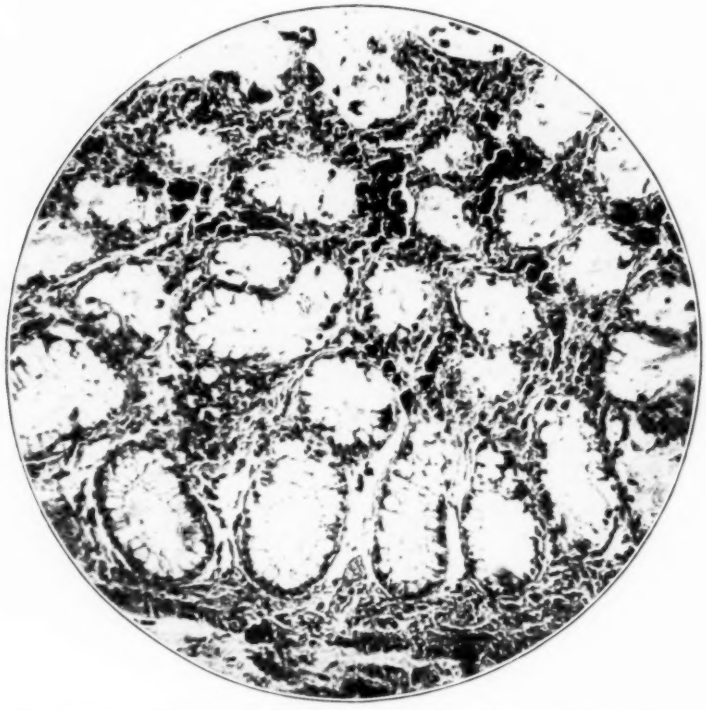

Fig. 8.—Colon. Clusters of pigmented endothelial cells in the mucous stroma. This was uniform and general throughout the colon, but not in the small intestine, suggesting some eliminative process in connection with the pigment.

Fig. 9.—Colon. One of the larger sarcomatous nodules has its primary seat in the submucosa, and is infiltrating both the mucosa and muscularis. The ectasia of vessels such as was seen in the skin is repeated here in the center of the lesion.

Fig. 10.—Stomach. Sarcomatous infiltration of the mucosa. The gastric tubules exhibit an adenomatous hyperplasia.

The epididymis and spermatic cord appeared normal.

In none of the foregoing organs were hyperplastic or other features witnessed which could be construed as parts of the lesions of Kaposi's sarcoma. In the next group of organs, however, such features were found.

The serous and muscular tunics of the stomach were normal. The sarcoma lay in the upper parts of the submucosa and infiltrated the

Fig. 11.—Stomach. Adenomatous hyperplasia of the gastric tubules, together with pigmentation. This field lay immediately at one side of a sarcoma nodule. Both the acid and peptic cells sometimes, but not commonly, contained hemosiderin granules. There is a trefoil cluster of acini immediately in the center of the illustration; the blackness of the cytoplasms here is referable to such pigment within them.

mucosa stroma to the surface, yet without destroying the surface covering of epithelial cells. It was fairly well circumscribed although not encapsulated, and consisted of spindle cells of the same type as the ones described in the skin, i. e., with elongated and well defined tapering

nuclei. The whorled, fascicular arrangement consistent with spindle cell sarcoma was represented here. In spite of the great abundance of capillaries, there were no ectatic forms or pigmentary features; but adjacent to the lesion, several cavernous blood spaces were found which were most useful in convincing us that the same process was concerned in both the intestinal and cutaneous lesions. The mucous membrane exhibited a frank adenomatous hyperplasia; parts invaded by the sar-

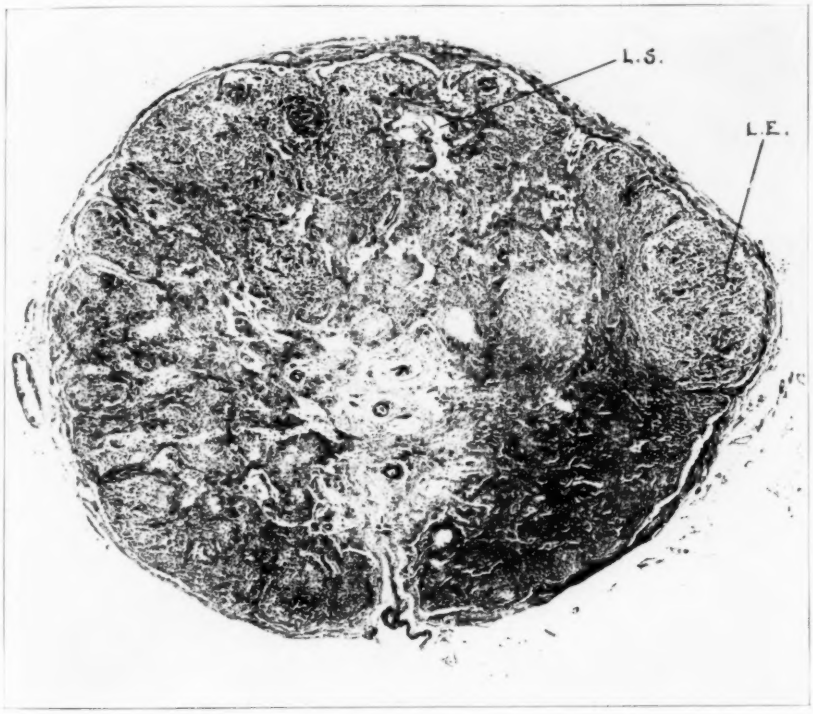

Fig. 12.—Inguinal lymph node. Dilated lymph channels at *L.S.* The lymphoid stroma is diffusely edematous (appears loose) through most of the node, and is locally so at *L.E.*; pigmented phagocytes are recognizable in these parts.

coma were atrophic, and curiously, the surviving acid cells in the fundus of the gastric glands contained hemosiderin granules, whereas they occurred most sparingly in the peptic ones.

In three blocks of tissue examined from the small intestines, the changes were of the same general type as those of the stomach. In addition, the muscular tunic was deeply infiltrated by the sarcoma; in this position and in the gastric submucosa were the most indubitable evidence of genuine sarcomatous histologic qualities.

The features in the colon were the same as in the small intestines.

Of all the regional nodes examined, the simplest and earliest changes were seen in the inguinal lymph nodes. The reticulum was edematous and well supplied with lymphoid cells. In certain restricted areas, cavernous spaces containing few blood cells were found, which were continuous with engorged or cavernous capillary blood vessels, i. e., changes analogous to those in the skin and intestines occurred here which indicate that the disease process here is the same as that in the gastro-intestinal tract and the skin. Likewise, hyperplastic capillaries similar to those of granulation tissue could be found; not accompanied, however, by the cellular infiltrate of acute inflammation but largely in relation peripherally to foci of hemorrhage and more or less hyaline fibrous tissue which reasonably represented involuted foci of previous disease. The extreme pigmentation which certain abdominal lymph nodes showed was not seen here; however, numerous fine granules could be found within almost every spindle and endothelial cell in the section. Cortical follicles were almost unrecognizable on account of the edema which dissociated their constituent cells. In two or three remnants of such follicles, the centers were fibrosed. No fungus structures were found anywhere in this node.

Findings in the cervical nodes were substantially as in the preceding, with the hyaline foci, capillary hyperplasia, hemorrhage and pigmentation; but there were no edematous features.

Changes were so extreme in the mesenteric nodes that the normal cortical and medullary arrangements were unrecognizable. The stroma consisted as normally of a delicate reticulum which bore lymphocytes in normal numbers, but with them especially young forms of lymphocytes were associated which bespoke more than the normal growth rate of the tissue. On search, forms with two or three nuclei were discoverable. There were no eosinophils as in Hodgkin's disease. While a few capillaries and small hemorrhages were exhibited, hematic features on the whole were not as conspicuous as in preceding sections, because so few of the blood capillaries were widely dilated. Extensive diffuse infiltrations of blood pigment granules occurred, particularly in the cortex—some free, but most within spherical or spindle-shaped phagocytes.

In the cortex, corresponding roughly to the position of the follicles, groups of foreign body giant cells of all sizes appeared, either alone or in the midst of foci of coarsely reticular, adult fibrous tissue. Never were there any associated necroses or endothelioid or lymphoid cell infiltrates as in tuberculous and other granulomatous states. It was in relation to these giant cells that the fungus structures appeared which will be separately described later; for the present, note will be made only that it appeared in two forms—a blue-staining, less sharply defined

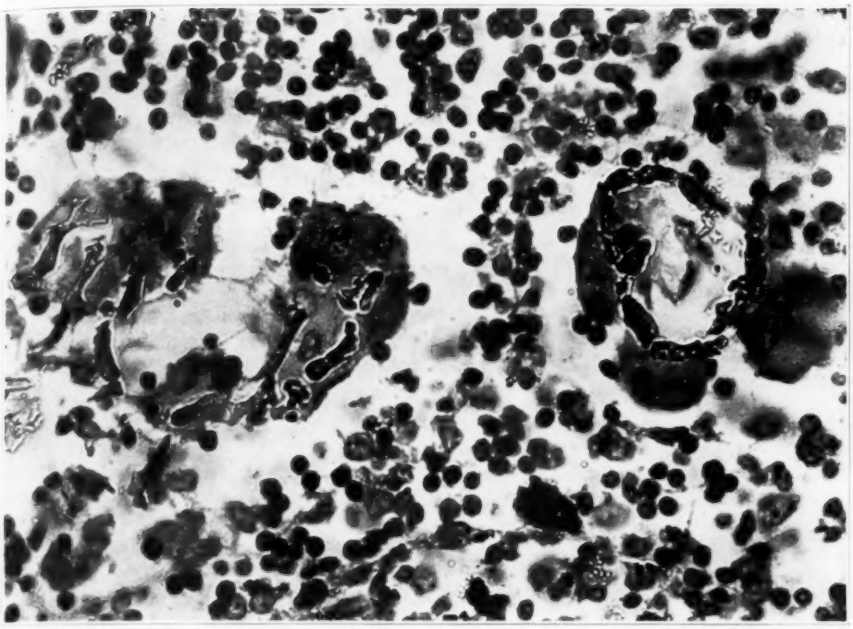

Fig. 13.—Mycelium within giant cells in gastro-hepatic lymph node. In several other places, the arrangement of mycelium into more or less of a whorl was seen.

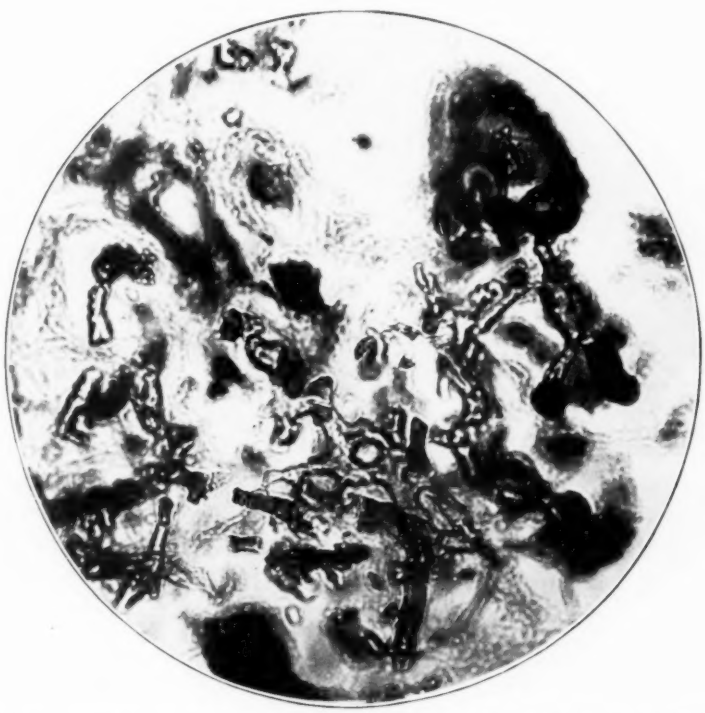

Fig. 14.—Section of the gastro-hepatic lymph node. Mycelium is abundant, and within one of the giant cells several chlamydospores—all terminal— are seen.

and evidently degenerated one, and a greenish-yellow, sharply outlined, vital one. The degenerate form occurred almost exclusively with the foci of fibrosis, certainly the largest accumulations of such mycelia occurred in them. Furthermore, it was mostly *within* the giant cells, but occasionally it could be found outside of them intermixed with reticular fibrous tissue. On the other hand, when giant cells appeared in the stroma apart from any fibrous reaction, they almost invariably contained vital mycelia only—not the degenerate form. The interpretation placed on these observations is as follows: Spores or other reproductive bodies were carried to the node (or diffused from adjacent foci in the node) and at once enclosed by the giant cell. These fungus elements in the initial vital state were incapable of stimulating any tissue reaction (unlike the tubercle bacillus, etc.) other than this giant cell formation. As they became degenerate or died, they were released from the giant cells, and then, perhaps through simply mechanical effects or perhaps through degeneration products, produced a mild reactive fibrosis which concluded the process. On the whole, the reaction was of the type which would be induced by a comparatively inert, non-vital body; there were none of the severely degenerative or necrosing effects indicative of the workings of toxins. There was this difference, of course, from a simple foreign body process, i. e., the process was progressive and self-perpetuating by reason of the multiplicative properties of the irritant concerned.

One of the omental (gastrohepatic) nodes appeared identical with the mesenteric one. It contained much pigment and fungus. A second node, which was very soft and mushy, was quite different. The capsule was heavily thickened, in part by hyaline fibrous tissue which was at places massively infiltrated by lymphocytes and in part by more or less whorling fasciculi of large, closely packed spindle cells of the same embryonal type as were described in the infiltrated parts of the stomach. In both places, there were numerous blood capillaries, and in the latter, minor diffuse hemorrhages and blood granules. None of the normal architecture of the pulp, such as follicles and sinuses, could be made out. Considered on the whole, it was comprised almost entirely of blood, either in the form of large expanses of hemorrhage or of blood-soaked necrosis. What few vital parts there were consisted of closely placed ectatic (in one region cavernous) capillaries which were more or less coalescent and indefinitely formed, while between their lumina their walls collectively formed a reticulum of spindle cells of embryonal type which we consider endothelial. Great numbers of fine blood-pigment granules appeared, both free and within these cells, but there were none of the swollen phagocytes such as were encountered in the omental node.

DESCRIPTION OF THE FUNGUS

In distribution, the fungus was limited to the extremely hemorrhagic, pultaceous group of nodules in the gastrohepatic and one of the mesenteric nodes. We have not found anything to suggest similar infection in the several nodes examined from positions in the mesentery, neck and peribronchial positions—even with full realization that they might have been present there in such modified forms as spores, sclerotia, etc., and after due search therefor had been made.

The fungus was disposed almost exclusively in the cortex of the lymph nodes, and in view of the absence of any follicles in the neighborhood, it seems fair to assume that the cortical follicle was the site of election for the growth of the fungus and had been destroyed by it. It was arranged as clumps of closely interlacing mycelia and few large spores—apparently terminal chlamydospores. The dissociation of segments which was so conspicuous in places may have been the result of tissue stresses (artefact). There were both robust and slender (younger) examples of mycelia represented, of which the former branched freely and at such close intervals as to produce a close network with relatively obstuse angles. The mycelium was homogeneous, highly refractile and hyaloid. No metachromatic granules could be found within the mycelium; had this been the case, the conveyance of such granules from this and other positions to the skin might be held accountable for the lesions there in the absence of recognizable fungus structures, just as we explain the tuberculids today. However, it appears that in this tissue, at least, this fungus produces no such granules nor the smaller spores which are known as conidia; nor were mycelia with double membranes such as are so commonly seen in saprophytic species ever observed.

In sections stained by hematoxylin and eosin, the mycelium, delicate as well as robust, ranged from the pale, greenish yellow with which we are familiar in fresh fungus (*tinea cruris*) material to a deep blue-black, the intermediate colors ranging from a golden brown, which was identical with that of the nearby hemosiderin granules, into a bluish green like that of the Prussian blue reaction. Other blue-black examples of mycelium were clearly degenerate (perhaps calcific), as shown by the occasional disintegration or "melting" which the greener examples never showed. The browner parts were so brown that an absorption of blood pigmentary material might well be imagined, although it must be conceded that some fungus species are thus chromogenic per se.

We must pause here to point out a practical bearing which this matter of color may have on the histopathology of this disease as it concerns the skin. It was not difficult, tracing out the segments of a given mycelial filament, to pick out segments which in color, size and irregu-

larity of form were identical with adjacent hemosiderin granules, and from this it at once followed that if such segments or fragments thereof were carried to the skin as individuals, they would be indistinguishable from the blood-pigment there. That is, even though such fungus particles were present in the skin, they might pass unrecognized and be regarded as hemosiderin granules with which they were associated; and the not infrequent encrusting of such segments by very fine (apparently hemosiderin) granules was only calculated to make their resemblance yet closer to blood pigmentary material, and their identification more difficult were they to appear in the skin.

In addition to the abundant mycelium, occasional chlamydospores, all terminal, were present. Typical ones had a double contour and simulated blastomyces, especially when dissociated from mycelium. Larger examples were blue-black, smaller ones were greenish yellow and highly refractile like the mycelium. As seen in tissue, the smaller ones measured 16 microns and the larger ones 24 microns in diameter. The thickness of mycelium ranged up to 8 microns in diameter (micrometer disk standardized on basis of red blood cells in section being 8 microns in diameter). Actual measurements for the chlamydospores were 7.5 to 12.5 microns and for the mycelium 5 microns.[4] The interior of these cells was hyaloid and structureless, except for occasional concentric shadings or changes of density. In the case of the older, blue (calcified) specimens, the centers were paler than the shells. In the case of the smaller, younger, greenish yellow ones, the central part was dark brown. The surface of one very large, blue specimen was studded with minute golden brown granules, such as are seen on the fuseaux of certain animal microsporons. These also, if detached, would be indistinguishable from the finest examples of hemosiderin granules.

These double-contoured bodies recall certain ones which were mentioned in a previous paper by one of us.[5] In that communication, a case was described presenting a single sarcoma-like lesion of the leg, which was markedly hemorrhagic, contained granulomas microscopically and in which certain double-contoured bodies lay within giant cells. The cellular reaction there was definitely that of the infectious granulomas, which was not the case with the lymph node here, but mycelial development was indefinite and insignificant. The effect of this case of Kaposi's sarcoma is to strengthen or confirm our opinion which was expressed at that time that the bodies in that case were fungous in nature and not psammoma bodies.

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4. The two sets of measurements are given because it is not known how far the histologic embedding processes caused shrinkage of the fungus elements.

5. Weidman, F. D.: Blastomycetoid Bodies in a Sarcoma-Like Tumor of the Leg, Arch. Dermat. & Syph. **3**:743-752 (June) 1921.

Unstained Sections: In these there was no difference in the color of the degenerate and vital mycelium—both were greenish yellow, but the chlamydospores were frequently rusty brown like the hemosiderin granules.

Prussian Blue Test (Perl's Test): It was necessary to keep sections in the reagents overnight before a positive reaction was secured. Mycelium stained strongly blue by this test, and the chlamydospores deeply so. However, every structure in this blood-soaked lymph node, particularly the nuclei, stained definitely blue, and the iron content of the fungus could not therefore be regarded as a specific property, but only as an indication that the fungus was sharing in the general hemic saturation. Surprisingly, but agreeably to us, the blood pigment granules did not become blue, but changed from golden brown to greenish yellow; this afforded the distinction desired between fungus elements and blood pigment granules which was so useful when searching in other organs for fungus structures.

Pathologic Diagnosis.—In the aorta, atheroma and fibrosis of the media was diagnosed; thyroid atrophy; in the liver, biliary atrophic cirrhosis, hemosiderin pigmentation and chronic passive congestion (fatty degeneraton in the centers of the lobules); in the spleen, exhaustion and regeneration of the lymphocytes and hemosiderin pigmentation (very moderate); in the urinary bladder, hemangio-endothelioma; in the stomach, capillary hemangio-endothelioma, adenomatous hyperplasia and excretion of pigment (?); in the small intestine, capillary hemangio-endothelioma and chronic atrophic enteritis; in the large intestine, phagocytosis of pigment, chronic catarrheal colitis and hemangio-endothelioma; in the mesenteric lymph node, hemangio-endothelioma, hemorrhage, necrosis and mold invasion (mycelia and chlamydospores); in the omental lymph node, mold invasion and edema; in the ileocoloc lymph node, hemorrhage, hemosiderin pigmentation and lymphoid hyperplasia; in the inguinal lymph node, hemorrhage, hemosiderin pigmentation, edema, capillary hyperplasia and ectasia and local fibrosis; in the cervical lymph node, hemorrhage, hemosiderin pigmentation and capillary hyperplasia; in the testes, hemosiderin pigmentation, atrophy and fibrosis, arteriosclerosis and edema; in the spermatic cord, arteriosclerosis with calcification; in the epididymis, congestion and edema; in the skin, hyperkeratosis, acanthosis, hemorrhage and hemosiderin pigmentation; also in the blood capillaries and lymph spaces of the skin, hyperplasia and ectasia and endothelial hyperplasia (endothelioma)? arteriosclerosis.

SUMMARY OF HISTOLOGIC FINDINGS

Incidental.—Incidental to the senile state, there were sclerosis of the aorta and atrophy of the thyroid. There was also a hypernephroma.

Essential Kaposi Sarcoma Findings.—Lesions more or less of the same type were found in the urinary bladder, stomach, intestines and skin, and in the mesenteric, cervical and gastro-hepatic lymph nodes.

All lymph nodes examined showed a tendency toward edema, capillary hyperplasia, hemorrhage and pigmentation (cervical, inguinal, mesenteric, gastrohepatic).

The general theme was thus the same here as in the skin, i. e., hemorrhage, pigmentation, ectasia and some hyperplasia of vascular endothelium. The gastrohepatic node, however, must be considered sarcomatous according to present-day conceptions, with its infiltrations of the capsule, whorling arrangement of spindle cells, imperfect and irregular type of blood capillary and embryonal type of cells. These characters were repeated, though less frankly, in the lesion of the stomach.

Considering the cutaneous, gastro-intestinal and lymphatic lesions collectively, we can trace various levels of vascular hyperplasia ranging from what seems to be no more than ectasia of preexisting capillaries (skin) up to the disorderly sarcomatous pictures in the lymph node—between the two occur the more or less simple endothelial proliferative changes. If we were limited to the skin for an opinion, we would pronounce the changes nonmalignant. What we are dealing with probably is the old story of a stimulating process which ordinarily produces inflammatory effects but which on sufficiently prolonged application may induce malignancy. This could readily account for the controversy as to whether Kaposi's disease was granulomatous or neoplastic.

Secondary to the "Sarcomatous" State.—There was cirrhosis of the liver with phagocytosis of much pigment—perhaps induced by blood decomposition (and fungus?) products derived from the intestinal lesions. In the spleen, the hyperplasia of splenocytes (as shown by the high proportions of large and dividing forms) may have been secondary to similar reticulo-endothelial hyperplastic influences or compensatory to special drain on the lymphoid system. The pigmented cells in the testis must also be regarded as secondary developments.

Hyphomycetic.—In the mesenteric and gastrohepatic nodes, fungus structures were found, but the vascular and general proliferative features were no more marked near them than elsewhere; and in neither of these nodes could the idea of sarcoma be entertained. Certainly, the fungus does not immediately induce sarcomatous change.[5a]

ANIMAL EXPERIMENTATION

This was only an attempt to reproduce tumors or other disturbances in the gastro-intestinal tract by feeding cultures of *Achorion schönleinii* to guinea-pigs (two), and injecting similar material into the peritoneum of two other guinea-pigs. The cultures employed were both old and young ones grown on glucose agar, to which human blood was added. The feedings were continued over four months, and several

5a. A portion of the intestine, bearing tumors, together with histologic sections from the skin and organs of this case, has been deposited in the Army Medical Museum, Washington, D. C., where they may be consulted.

attacks of gastritis were induced with croton oil, in order to create a favorable portal of entry for the infection. At necropsy, the findings were negative. It should not be concluded that this organism is incapable of invading tissue—Kundrat [6] held that his case of visceral favus exhibited features that incriminated *Achorion schönleinii* as against the associated bacteria, and Sabrazes [7] induced tubercles in rabbits and guinea-pigs many years ago by intravenous injection of favus spores. We feel personally that neither of these cases will stand the test of analytic criticism; however this may be, in neither instance were lesions seen which were at all like those of Kaposi's sarcoma, and as it stands today, we can gather no support from the outside that Kaposi's sarcoma is an expression of favus.

COMPARISON WITH PREVIOUSLY REPORTED CASES

In this we will limit ourselves to those phases which have been the more uncommonly covered in the previously described cases—more particularly to the postmortem ones.

We find records of nine cases in which visceral lesions were associated as proved by necropsy. According to these, ours is the tenth in all literature and the third to be described in the United States. The following authors described necropsy cases.

Kaposi,[8] in connection with his five original cases, described one with necropsy. Later he stated that he had seen twenty-five cases, but did not give data on them individually. He commented on bloody diarrhea in his one necropsy case.

Della Favera [9] described three necropsy cases from Parma, Italy. There were no visceral sarcomas in one case, but in the other two they were found in the lungs (peribronchial, and up to the size of a hen's egg), trachea, bronchi, stomach, intestine, femoral and axillary and internal iliac lymph nodes, and on the surface of the liver. Some of the intestinal lesions had ulcerated, and in a case of eight years' duration, there was calcification of some of the lung lesions.

Philippson [10] reported ten cases, two of which came to necropsy. In one, which was of twenty-seven months' duration, there was wide-

6. Kundrat, H.: Concerning Gastro-Enteritis Favosa, Wien. med. Bl. 1884, p. 1538

7. Sabrazes, cited by Mracek: Handbuch der Hautkrankheiten **4**:68, 1909.

8. Kaposi, M.: Arch. f. Dermat. u. Syph. **4**:265, 1872; Path. u. Therap. d. Krankh. Ed. 5, 1899, p. 923.

9. Della Favera, G. B.: Concerning the So-Called Sarcoma Idiopathicum Multiplex Haemorrhagicum (Kaposi), Arch. f. Dermat. u. Syph. **109**:387-440, 1911.

10. Philippson, L.: Concerning Kaposi's Idiopathic Sarcoma of the Skin, Arch. f. Path. Anat. u. Phys. u. f. klin. Med. **167**:58, 1902.

spread carcinomatosis—primary in the liver—but there were no internal sarcomas. In the second, in which the disease was of thirty months' duration, there were lesions on the conjunctiva, tonsil and soft palate, and metastases were found in the gastric submucosa, the appendix, colon, spleen, testicle, mesenteric and retroperitoneal lymph nodes and on the peritoneum. Unfortunately, Philippson's discussion was bent toward the relationship between neoplasia and inflammation, and he gave no detailed description of the visceral lesions. He only went as far as to state that microscopically they were of two kinds, in one of which the blood vascular features predominated, and in the other the spindle cell hyperplasia.

The only necropsy cases reported in America appear to be those of Lieberthal,[11] who in discussing Cole and Crump's paper simply mentioned the fact that metastases to the intestines were found, and that of Winternitz and Boggs.[12] The latter authors described their case in great fulness, and while it would not pass for Kaposi's sarcoma dermatologically because none of the lesions were in the skin (but subcutaneous), it is included here because it certainly had the same pathologic basis. Lesions were found in the esophagus, stomach and intestines, but not in the mesenteric nodes. The gastric nodules showed carcinomatous degeneration in addition to sarcomatous changes. There was bloody mucus in the stomach and intestines. This is a paper worth while reading because it essays the cause on the basis of judicial, comprehensive analysis of the clinical and morbid anatomic effects of this disease.

Semenoff [13] described briefly the findings in two necropsy cases to the effect that lesions were found in the liver, stomach, pancreas, kidneys and colon. His description leads us no farther, but later he stated that a red node was found in the cervical portion of the cord. Microscopically, the only point of value which he brought out was that in the spinal ganglion "many cells were completely filled with granular pigment of golden-brown color," and that peripheral nerves showed swelling of the "neuroglia nuclei" and proliferation of the connective tissue. He concluded that Kaposi's disease was related to the nervous system.

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11. Lieberthal, D., in discussion of Cole, H. N., and Crump, E. S.: Report of Two Cases of Idiopathic Hemorrhage Sarcoma (Kaposi), the First Complicated with Lymphatic Leukemia, Arch. Dermat. & Syph. **1**:294 (March) 1920.

12. Winternitz, M. C., and Boggs, T. R.: A Unique Coincidence of Multiple Subcutaneous Haemangio-Endothelioma, Multiple Lymphangio-Endothelioma of the Intestinal Tract and Multiple Polypi of the Stomach Undergoing Malignant Changes; Associated with Generalized Vascular Sclerosis and Cirrhosis of the Liver, Bull. Johns Hopkins Hosp. **21**:203, 1910 (freely illustrated).

13. Semenoff, T. V.: Monatschr. f. prakt. Dermat. **25**:539, 1897.

Mariani's [14] necropsy case was almost identical with ours except that there were no lymphoid hyperplasias. He mentioned specifically that there were no ulcerations of the gastric intestinal lesions. In his fifty-five page paper, he abstracted sixty-two cases (some of which do not appear to be valid examples of Kaposi's disease); and from these he generalized as to the clinical course, predisposing causes, pathogenesis, etc. His conclusions as to the latter were adopted in substance by Ewing.[15] His photographs of the intestinal lesions represent perfectly those in our case.

As regards fungus findings our case stands alone.

SARCOMA OR GRANULOMA IN KAPOSI'S SARCOMA

The answer to this question can only be attempted after a ground common to both parties to the discussion has been provided in the form of an agreement as to the scope and limitations of the concept of sarcoma, and this in turn involves the several qualities which are today held to constitute malignancy. As soon as we apply these touchstones to Kaposi's disease, we realize that there are clinical considerations as well as microscopic ones, and that several most important ones are incompatible with sarcoma. Thus, the consistently cutaneous distribution in the face of multiple lesions, the absence of a primary focus that progressively enlarged, ulcerated, etc., the comparatively uniform size of all lesions (as sarcoma goes), the very slow growth, absence of cachexia, the consistent disappearance of certain lesions in almost every patient—all these are contrary to our concepts of malignancy.

But when we come to the microscopic characters it is a different story. In the skin of the patient in our Case 1, and in the lymph nodes, stomach and intestines of the patient in our Case 2, the cells were embryonal, closely placed, and what was more important, the tissue was infiltrated and destroyed. There could be no doubt concerning malignancy histologically in numerous places, and if the disease were viewed from the standpoint of this one case, the conception of malignancy would be justified. But with the background of over a hundred other reported cases, and recalling the lesson which every experienced histopathologist has learned—how often histologic malignancy has proved not to be clinical malignancy (some cases of epithelioma contagiosum and blastomycosis, some nevi)—it is saner to conclude that the primary disease is nonmalignant, not sarcoma, but an inflammatory hyperplastic process.

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14. Mariani, G.: The Sarcomatosis of Kaposi with Special Reference to Visceral Localizations, Arch. f. Dermat. u. Syph. **98**:267, 1909.

15. Ewing: Neoplastic Diseases, Ed. 2, Philadelphia, W. B. Saunders Company, p. 252, 1922.

Somewhat similar questions have arisen in connection with fibrosarcoma and giant-cell sarcoma, in which the clinical course has been preeminently a mild one and yet the histologic picture has been clearly that of malignancy. As Highman has so properly emphasized, microscopic findings have definite limitations; the clinical course cannot always be predicated from them.

Our ideas of the pathogenesis are somewhat like those of Ewing, that there is some general systemic influence which induces an ectasia of lymph (and perhaps blood also) vessels in peripheral parts, and that succeeding this, inflammatory agents enter to produce the hyperplastic features. As to the predisposing factors, location appeals to us most; parts which, if not actually dependant, lack a certain amount of support such as obtains in the interior of solid organs. This conception would explain why the lesion occurred on surfaces—skin, mucous membranes, serous surfaces (peritoneum). As to the exciting agent, we feel that, judging from tissue effects, it is more a diffusely acting one such as operates in alcoholism, lead poisoning, etc., than a circumscribed one like tuberculosis or syphilis. We are not in sympathy with the idea of granuloma. Whatever there may be of local tendency we would refer to such conditions as hypostasis, lack of support, etc., as have already been cited.

RÔLE OF THE FUNGUS

It would be presumptuous for us to claim that the fungus in Case 2 is the cause of Kaposi's sarcoma. We believe, however, that it offers a lead, and that in future cases, both clinical and necropsy, search of the feces and stomach contents should be made for fungus and occult blood. As to the identity of the fungus, all we can venture to say is that structures identical with those in the tissues may be found in cultures of *Achorion schönleinii*—the terminal chlamydospores which were so often seen in pairs or clusters in the lymph nodes could pass very well for portions of the chandeliers favique of *A. schönleinii* cultures. These features are insufficient, however, for certain diagnosis, and cultures were not taken because there were no indications of fungus grossly at necropsy and on account of our brief acquaintance with the case—only twenty-four hours from first observation to removal of the body by the undertaker.

The fungus affinities in re etiology are: first, a clinical circumstance, namely that the disease, being one common to Russian Jews and Italians, came from the hotbeds of favus. Second, the mesenteric nodes not uncommonly harbor fungi. Third, one of us has had an experience with a solitary sarcomatoid lesion (already referred to) in which fungus structures were found in sections, and in which the lesion was severely hemorrhagic. Furthermore, Dr. Allen J. Smith has shown us a

markedly hemorrhagic granuloma of the subserosa of the appendix in which he demonstrated mycelial filaments within the giant cells. The point to all this is that in each of these three cases in which fungus was found the lesion was markedly hemorrhagic, and that the connective tissue hyperplasias had been induced in two of the cases to the degree and after the fashion of sarcoma.

The possibility of fungus causation is the more plausible as one realizes that until the etiologic agent in any disease is established there is always the possibility that it is but a clinical and not an etiologic entity. This holds good for Kaposi's sarcoma. As it stands today, plural agencies are conceivably capable of inducing the lesion of Kaposi's sarcoma just as *B. tuberculosis* and *Spirochaeta pallida* may produce an identical lesion. While we most emphatically oppose subdivisions until there is an etiologic basis, we feel that Kaposi's sarcoma would have been divided into different groups long ago had it been more common—as common as epithelioma.

PATHOGENESIS

In casting about for mechanisms which would accommodate the circumstances in our cases and other cases of Kaposi's sarcoma, we have considered several hypotheses, but before proceeding to these it will be advantageous to outline certain premises. As we do this, we first state that, carried to the last analysis, the one outstanding tissue change is that of endothelial cells, and that the change therein consists in a hyperplasia. We are at once confronted with the knowledge that such hyperplasia is a concomitant of numerous other inflammatory processes—both acute and chronic. Why do we single out this process and devote such special attention to it as it occurs in Kaposi's sarcoma? It is because the endothelial hyperplasia is not accompanied by the other evidences of inflammation in a grade commensurate with the grade of the endothelial hyperplasia, and because these cells are affected in some additional way whereby they become parts of spaces that are ectatic. There are thus reasons for ascribing more than the usual significance to the endothelial cells and centering our attention[15a] on them as they participate in the morbid changes of Kaposi's sarcoma. In this connection, the transverse course of the intestinal drains must not be forgotten, because it points out that the disease is following the course of the blood and lymphatic vessels. This is confirmed in sections (Fig. 9).

We wish next to recall that this class of cells is a most responsive one, is highly phagocytic, and that a real element of selectivity resides in them. Thus, those of the liver and spleen will ingest particles of carmin in much greater quantities than will those of the lungs. Other

15a. For further pertinent data see Ewing, Footnote 15, p. 225.

stimuli may act in the same way—in typhoid fever, the endothelia of the spleen and lymph nodes respond particularly. This implies that, congenitally, endothelial cells in certain parts of the body are endowed with certain functions—they become differentiated, if not morphologically at least functionally, just as do those of the liver and pancreas.

Hypothesis 1: This at once leads to the concept that nevoid states may occasionally obtain in endothelia in various body parts; that, as a congenital anomaly, certain of the cells vary from the others in that they are unduly responsive to this or that special stimulus. This might be considered as a nevoid state concerning endothelium akin to Cohnheim's theory except that the Cohnheimian response must be neoplastic. Given some generally circulating endothelial irritant of dosage insufficient to excite a general endothelial response, the dosage might still be sufficient to affect the nevoid parts and provoke a spotty distribution of endotheliosis such as we see in Kaposi's sarcoma.

Opposed to this idea, the significant distribution in dependant parts might be cited. This, however, could be a secondary and local development in which the secondary hemorrhages and ectasias were no more than the factors responsible for the condition becoming visible. Thus, perhaps an endotheliosis is actually occurring in numerous places elsewhere, but the accessory factors of increased intravascular pressure, trauma, cold, etc., are absent; the vessels do not dilate and the disease is not revealed.

This theory appeals only as one of last resort, because it does not lend itself to proof.

The remaining hypotheses have to do with some definite substance as the exciting agent—the compelling question and the fundamental question in the matter of etiology of this as of other diseases. In the following hypotheses, the congenital concepts of hypothesis 1 also might be operative; however, they are not essential.

Hypothesis 2: Our fungus is the irritant. That there should be fungi in the mesenteric nodes is not surprising—it is well known that various species have been cultured therefrom in necropsy cases. Most of them perish, but the fact that they have been cultivated, and their appearance in our sections are sufficient to show that some survive and constitute true infection. Passing next to the question of the mechanism of stimulus: Whereas the soluble products might have been operative, this cannot be tested in the absence of cultures, and in experimental work with fungi the results have in general been negative for the production of toxins. This possibility need not be extensively dwelt on. The other alternative, namely, that spores or other minute subdivisions of the plant have metastasized to the skin, has likewise failed of demonstration in our sections, unless the yellow granules on the chlamydospores be of fungus production. If such, they would be indistinguishable from blood

pigment and could escape detection in the skin or elsewhere. The outstanding objection to this hypothesis is that the fungus did not set up changes in its immediate vicinity comparable to those in the skin. That the fungus has no relation to Kaposi's sarcoma and is but a secondary invader, may be true, but the fact that both parties to the coincidence are rare and that the fungus occurred in goodly quantities must prevent summary dismissal of the question.

Hypothesis 3: The products of blood disintegration act as the endothelial stimulus. Here, keeping in mind the selectivity of endothelium, we propose that the chemistry of blood disintegration and the biochemistry of endothelium are not uniform in every person, and that on occasion the blood pigments et al are irritant. Given some circulatory disturbance such as ergotism, arteriosclerosis or exposure to severe cold such as has been frequently recorded in the literature or suggested in cases of Kaposi's sarcoma, we would have more or less minor escaping of blood which would provide the irritant blood substances and at the same time bring them in contact with endothelium. The proliferations of these cells, succeeded by ectasias and hemorrhages such as we have witnessed in our sections would thus inaugurate a vicious cycle; and after this, it is a simple matter to imagine the effects of the absorbed products as pictured in the sections of cirrhotic liver, hyperplastic spleen, etc.

Hypothesis 4: A specific micro-organism is the irritant. This, the most inviting and logical solution, has failed of demonstration by current laboratory examinations of all kinds—microscopic, histologic, bacteriologic, protozoologic and animal experimentation. With the lesson of *Spirochaeta pallida* behind us, however, we should not abandon this possibility.

Hypothesis 5: Metabolic products constitute the stimuli. This theory remains after exhausting the other possibilities. It simply points to the possibility that chemicals other than those of blood destruction have the capacity to act as exciting agents. The only prop which we can use here is the report of an associated cirrhosis of the liver, and that the cirrhosis is known to have preceded the eruption (Winternitz and Boggs). That the tissue changes are expressed particularly around blood vessels might also be considered as harmonizing with the theory, just as it does in that disease of disturbed lipoid metabolism, xanthoma; however, it would also harmonize with any generally circulating toxic agent.

Hypothesis 6: A lesion of the central nervous system is responsible. Semenoff advanced this theory on the basis of a red node which he found in the cervical cord. Turning to the other side of the shield to see whether the tissue changes of Kaposi's sarcoma will bear out the nervous

idea, we are lead no farther, for, in general, the ways of the central nervous system are so manifold and irregular in their effects on tissue that one cannot reason backward and conclude that a tissue change is so distinctive that it can be referred to the nervous system rather than to some other system. The confirmation of this theory will have to come from additional cases and other sources than the existing reports and data.

In review of all these hypotheses, we must admit, much as we regret to do so, that we are not justified in expressing a choice with the data at hand, although we are prejudiced in favor of hypotheses 3 and 4. At present, the subject of causation is speculative. We must await more direct evidence, not closing our minds at the first discovery of a cause, but realizing that more than one of the foregoing hypotheses may be valid. Halle's [16] and Mariani's contributions will prove interesting in relation to the etiology of this disease.

SUMMARY

Case 1 was an advanced elephantiasic one with bullae, which did not come to necropsy.

In Case 2, in addition to the usual cutaneous lesions, hundreds of small, blood red tumors were found in the intestines, and a few in the stomach, urinary bladder and mesenteric lymph nodes.

Fungus granulomas were found in the sections of the mesenteric and omental nodes within which mycelia and chlamydospores were demonstrable.

Histologic studies led to these conclusions: The lesion had its beginnings in the uppermost levels of the corium. The primary change was an irregular hyperplasia of capillaries, speedily accompanied by lymphangiectasia, hemorrhage and hemosiderin pigmentation.

Secondary changes consisted in an exaggeration of all the processes mentioned above (the angiectasias becoming cavernous), to which were added large nodular accumulations of lymphocytes around capillaries, together with nests of embryonal endothelial cells. There was little fibrosis, but much edema.

Kaposi's sarcoma is primarily chronic inflammatory, but secondarily may become sarcomatous. While the sarcomatous changes are not of a highly malignant order, they are definitely within the sarcoma category as viewed in the gastro-intestinal lesions. Authors whose experience has been limited to cutaneous studies are excusable for holding to the chronic inflammatory theory; but this does not constitute the whole disease, and the sarcomatous phase must not be denied.

16. Halle, A.: Arch. f. Dermat. u. Syph. **72**:384, 1904.

It is an open question whether the fungus invasion by way of the intestines is one of the causes of Kaposi's sarcoma.

It is suggested that in future this disease be regarded in the broadest possible internal medical sense. Patients should be studied from the standpoint of the hemochromatosis of Opie,[17] the question of diabetes mellitus in connection with a pigmentary cirrhosis of the liver should be covered, and in this same connection the newer liver functional tests may prove of value. Examination of the urine for urobilin and hematoporphyrin might also give results that fitted into the complex blood destructive processes. In respect to the development of visceral lesions, examination of the feces and gastric contents for occult blood might give information. The state of the lymph nodes (biopsy), not forgetting the supraclavicular node,[18] should be determined—the presence of the latter may mean the same that Troisier's ganglion does, namely, visceral malignancy. Search for fungus in the feces and gastric contents is justified, even though the result should be negative in repeated cases, until it is demonstrated that the disease is an etiologic entity, and that fungus causation can be excluded.

17. Opie, E. L.: A Case of Haemochromatosis—the Relation of Haemochromatosis to Bronzed Diabetes, J. Exper. Med. **4**:279, 1899.

18. Frost, K. P.: Multiple Idiopathic Hemorrhagic Sarcoma (Kaposi), Arch. Dermat. & Syph. **3**:155 (Feb.) 1921.

ACUTE SEPTIC PEMPHIGUS *

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The title "acute septic pemphigus" was selected because it describes a certain well defined entity better than plain "acute pemphigus," a term at times applied to chronic forms of malignant character with frequent remissions and severe manifestations. Acute septic pemphigus exhibits the same cutaneous appearance as chronic pemphigus, but differs in its rapid development, its early signs of systemic involvement and its rapid fatal termination. The whole picture is that of a fulminating septicemia attacking a system apparently without an immunizing protection. Acute septic pemphigus holds an ambiguous position in dermatology. Except for the assumption of an overwhelming bacteremia, the reason for the rapid development of the disease and death of the patients is obscure. Necropsies do not reveal sufficient evidence. Bacteriologic examinations have shown at different times the presence of *Bacillus pyocyaneus,* the streptococcus, the colon bacillus and other bacilli, but all of these, no doubt, play a secondary rôle. Acute pemphigus has never been unqualifiedly classified as a true form of pemphigus.

REVIEW OF THE LITERATURE

Many dermatologists believe in the probability of pemphigus being a separate condition of an entirely different etiology. Sutton [1] agrees with Wile that the condition occupies a doubtful position in the pemphigus group. Crocker [2] says that the acute cases are universally regarded as pemphigus, although etiologically they are probably separate conditions. Spiegler [3] omits mentioning the acute type in his discussion of pemphigus. Since a number of these cases occur in persons handling the bodies of dead animals, Bowen [4] considered the possibility of a relation with foot and mouth disease in animals, which at times exhibits

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* Read at the Forty-Seventh Annual Meeting of the American Dermatological Association, Minneapolis, June, 1924.

1. Sutton, R. L.: Diseases of the Skin, St. Louis, C. V. Mosby Company, 1923, p. 291.

2. Crocker, H. R.: Diseases of the Skin, Philadelphia, P. Blakiston's Son & Co. **1**:299, 1908.

3. Spiegler in Mracek: Handbuch der Hautkrankheit **2**:1, 1902.

4. Bowen, J. T.: J. Cutan. Dis. **23**:381, 1905.

bullous lesions. MacLeod [5] is inclined to take the same view. During an epidemic of smallpox in Boston in 1901, vaccination in a number of people was followed by acute bullous eruptions with considerable mortality. Howe [6] suggested that they might be caused by an infected animal lymph. Mook [7] reported a similar experience in St. Louis in 1915. These opinions prove the contention that acute pemphigus is considered an obscure condition, both in regard to etiology and its manifestations. Eberson [8] is the first to offer more than theories about the etiology of pemphigus. He gives such a wealth of convincing evidence that a new micro-organism discovered by him and named "bacterium pemphigi" is the specific cause of pemphigus, that I feel that, unless new developments should contradict him, his conclusions are final. In each of a series of seven cases of pemphigus, his organism was found, morphologically, culturally and immunologically the same. It is gram-positive, anaerobic, nonmotile, coccoid in form, resembling a streptobacillus in certain respects, is pathogenic for guinea-pigs and rabbits, and possesses definite toxic properties. The bacterium pemphigi has not been found in healthy persons or in those having skin diseases other than pemphigus. The seven quoted cases varied from four to seven months in their duration, preceding or during the hospital stay of the patients. Some of them were of the very severe types of the so-called malignant pemphigus.

In a personal communication, Eberson writes:

> Malignant pemphigus is a term which seems to me to embrace all the types that end fatally a few weeks or longer after the appearance of bullous lesions. Admittedly the terminology is poor and at first I was inclined to call each case "acute pemphigus." At no time, however, was I in doubt that the fulminating or "acute" pemphigus was in any way different as to possible bacterial etiology. The conviction has been borne out by the results published in my paper, namely, that the same organism was isolated from either patients who died shortly after the lesions appeared, or those whose disease was more protracted in its course. In addition, the organism was isolated successfully both early and late in the disease in the cases which terminated fatally.

With Eberson's report in mind, we were anxious to test his observations in a case of the virulent acute type of pemphigus, in which the patient came under our care a short time afterward, and to establish its identity with the pemphigus group.

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5. MacLeod, J. M. H.: Diseases of the Skin, New York, Paul B. Hoeber, 1921, p. 870.

6. Howe, J. S.: Tr. Am. Dermat. Assn., 1902.

7. Mook, W. H.: J. Cutan. Dis. **33**:667, 1915.

8. Eberson, F.: Studies on the Etiology of Pemphigus. 1. Bacteriologic Findings in a Group of Cases of Pemphigus, Arch. Dermat. & Syph. **8**:204 (Aug.) 1923.

REPORT OF A CASE

E. S., a retired farmer, aged 71, a Swede, was admitted to the hospital, walking, Nov. 20, 1923. He was well nourished, in good health except for the skin trouble, and appeared younger than his stated age. His family history was negative. The patient had never had any serious sickness nor skin eruptions. A month previous to admission he had fallen off the porch, bruising his right elbow. The arm became swollen and discolored, and was painful for several days. Ten days following the fall, small vesicles were seen, first on the left, later on the right, forearm. Successive crops of vesicles appeared rapidly and were punctured by the patient as fast as they appeared. The lesions increased in size up to that of a hickory nut and larger, and rapidly covered the lower extremities, the trunk and scalp in the order named.

On admission to hospital, the patient had numerous bullae of various sizes, involving more or less the whole body, except part of the back. The bullae were thin-walled, on a noninflammatory, normal appearing skin, most of them containing clear serous fluid, a few containing blood and pus. Interspersed were abraded areas, partly oozing, partly covered with shreds of skin and crusts. On the roof of the mouth, on the posterior pharynx and the under surface of the tongue, patches either denuded or covered with grayish membranes and surrounded by considerable inflammatory swelling were present. The conjunctivae were injected and the lips crusted and bleeding. Pruritus was intense at first, interfering with the patient's rest and sleep, but subsided later on. On account of the painful condition of the mouth, swallowing was difficult and finally almost impossible. The temperature was around 99 F. the first week, gradually going up to 102 and 104 F. during the last days. The pulse was rapid.

At first the patient was mentally alert, expressing the opinion that he would recover and taking interest in his surroundings, but soon he became weaker, apathetic, and delirious and finally died in coma on the nineteenth day after admission and five weeks after the appearance of the first bullae. Necropsy was not allowed.

Blood count on admission was: hemoglobin, 75 per cent.; red cells, 4,020,000; white cells, 11,900; lymphocytes, 22; polymorphonuclears, 76. Urinalysis revealed: specific gravity, 1.015; otherwise the examination was negative. The physical examination was negative.

The bacteriologic work was undertaken by Dr. J. T. Myers of the University of Nebraska College of Medicine, who gave the following report: Laboratory findings in a case of pemphigus attended by Dr. Schalek at the Methodist Hospital were: The medium used was a brain glucose broth, prepared according to the method of Eberson, except that no Andrade indicator was added because no satisfactory acid fuchsin was available. Twenty-five cubic centimeters of blood were drawn and six cultures were made, using 2 or 3 c.c. per tube. Two culture tubes were inoculated with 1 c.c. each of fluid from the blebs. No growth occured in any of the aerobic cultures. After five days a visible cloudiness appeared in two of the anaerobic blood cultures and in the anaerobic culture of fluid from a bleb. Stains showed a considerable number of small, gram-positive, coccoid bacilli, identical with those described by Eberson, in each of the cloudy cultures. Unfortunately, no subcultures were obtained.

Two mice, two guinea-pigs, and two rabbits received injections of 1 c.c. each of the original bleb culture, intraperitoneally. No definite lesions occurred. After ten days, the guinea-pigs died of bronchopneumonia.

CONCLUSION

In reviewing this case, it appears that the patient, an active and healthy person up to the time of his fall, acquired the infection with pemphigus through an injury to his arm. The rapid course of the disease, the generalized eruption, the grave systemic symptoms and the early death point to a profound bacterial toxemia, constituting a classic picture of acute septic pemphigus. The bacteriologic observations, though not successful as Eberson's, are sufficient to confirm his investigations and report of the identity and specificity of *Bacterium pemphigi*. If we accept his assumptions as proved, the demonstration of his organism in our case establishes the etiology of acute septic pemphigus and permits its proper classification.

DISCUSSION

DR. RICHARD L. SUTTON, Kansas City, Mo.: It seems strange that there is such a lack of unanimity regarding the experience of various dermatologists regarding pemphigus. Some years ago, I was very much surprised to learn that practically all of the cases seen in New York were fatal, whereas the majority of the Western patients recovered. I believe that a sharp differentiation exists between the ordinary, chronic cases and those of the so-called acute type, such as have been described by Pernet and Bullock, Grindon, Bowen and others. The latter cases almost invariably occur in butchers and veterinarians, and I believe are due to infection with a virulent streptococcus.

DR. JAY FRANK SCHAMBERG, Philadelphia: We have had an unusual incidence of pemphigus in Philadelphia during the past year. I can say that I have seen fully as many cases during the last twelve or eighteen months as in my entire previous dermatologic career. I have seen twelve cases, all of which have proved fatal. None were of the acute febrile type that has been described as associated with infection from animals. That may constitute a separate type.

We have had an opportunity to carry out careful investigations in our Research Institute under the direct guidance of a bacteriologist. In only one case was he able to find the organism described by Eberson, although his technic was rigidly followed. In a considerable percentage of the patients, we cultivated a streptococcus from the blood after the most rigid asepsis of the skin.

I think we are all in accord that pemphigus is an acute contagious disease but as to the nature of the infecting organism, I think we are still in doubt. The streptococcus is a ubiquitous germ found in many conditions, often existing as a saprophyte, but under certain circumstances it may bring about specific pathogenic effects.

In view of our findings, I am not yet willing to accept the statement that the bacteriologic cause of pemphigus has been found. The pleomorphism of the streptococcus suggests that possibly Eberson's organism may be related to it.

Our experience clinically coincides with that of Dr. Highman in that practically 100 per cent. of the cases were fatal. Some of the patients had their initial manifestations on the mucous membranes. I have a young man now under observation, in whom the mucous membrane lesions were diagnosed as Vincent's angina.

DR. WALTER J. HIGHMAN, New York City: I think the pemphigus problem is of such a serious nature, particularly in New York, that any effort to throw light on it should be welcomed. I cannot agree with Dr. Schalek that the type of case he describes represents a special entity in pemphigus. In New York we have this acute form becoming chronic. The cases begin acutely and develop into one of the chronic forms, either bullous or foliaceous.

In the East, contrary to Dr. Sutton, experience shows that we have a mortality of 100 per cent. One of our colleagues in New York says that such patients can be saved, but in the case of every one of my patients whom he treated and about whom he was optimistic, his optimism had to yield before he was through. I have a patient with acute severe pemphigus in mind, who was apparently holding her own. We carried out Dr. Davis' treatment, but the patient died of "acute septic pemphigus" after struggling along for a year with the chronic foliaceous type.

I believe that when the streptococcus is found it represents a secondary invader. I think the problem is similar to that in other exanthematous diseases, like scarlet fever, smallpox, etc., and we do not know where to look for the organism. Success in this must be just a matter of method. The only thing that upsets such a point of view is the Dick reaction in scarlet fever. It is one of the acute exanthems and yet from Dick's work, it is likely to be streptococcic in origin. But scarlet fever may be due to a symbiotic organism.

The case of Dr. Schalek gives little evidence that pemphigus is due to a specific organism. Dr. Schalek's paper does not supply any evidence that this type of pemphigus is to be isolated from other types, except as to the acuity of its course.

DR. GROVER W. WENDE, Buffalo, New York: I wish to add an experience similar to that of Dr. Schamberg, covering twelve cases of pemphigus chronicus seen in Buffalo during the last twelve months. I am to report the treatment of nine of these cases at our round table discussion.

I am much interested in Dr. Schalek's report and also in his references. I well recall the original report of Dr. Howe concerning ten cases of "bullous dermatitis following vaccination," which appeared in the *Journal of Cutaneous Diseases* (1903, p. 254). I saw three of his patients. While six of the patients died, the duration of the disease was comparatively short. While these cases may be considered as acute pemphigus, nevertheless, I am inclined to believe that they had an entity of their own as all followed vaccination, showing almost conclusively that some especial infective agent was introduced at the time of vaccination.

The diagnosis of acute pemphigus offers great difficulty, as the majority of cases so diagnosed subsequently are found to belong in some other category. I am inclined to consider this case as one of the many we now classify as chronic pemphigus.

DR. ALFRED SCHALEK, Omaha, Neb.: While little mention has been made in the discussion of Eberson's discovery, I feel that it is really of great importance. We find a new organism in pemphigus only, we succeed in growing pure cultures and, by inoculating animals, in producing the same disease. This should be sufficient to prove that the organism is the specific cause. I did not mean just to report a case of acute septic pemphigus, but to verify Eberson's investigations and to try to identify acute septic pemphigus with the pemphigus group. If acute septic pemphigus is not a true pemphigus, then it should not be quoted and described as such. I realize that this question can be settled only by the study of much more material.

SEVERE BLEEDING AND PURPURA FOLLOWING THE ADMINISTRATION OF NEO-ARSPHENAMIN

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BOSTON

Among the numerous untoward manifestations that sometimes follow the intravenous use of arsphenamin or its equivalent, purpura is mentioned. That its occurrence is not more frequent is fortunate. Most of the cases have been reported within the last four years. Does this mean that the newer arsenical preparations are responsible for the apparent or actual increase, or does it indicate more careful observation and better reporting on the part of physicians?

The case that I present differs widely from many of the reported cases both in severity and rapidity of onset.

REPORT OF A CASE

Mr. X. Y. Z., aged 44, single, was sent to me five days after receiving his last intravenous injection, which was the twenty-fourth injection that he had received. Only the last two had caused any reaction.

Following a positive dark-field examination of a penile lesion in June, 1922, the patient received ten weekly injections of 0.9 gm. of neo-arsphenamin and at the same time an intramuscular injection of mercury salicylate. His lesion healed, and all symptoms disappeared, and the Wassermann test, which had been positive, became negative and remained so for many months.

In June, 1923, following exposure, several penile lesions appeared at different sites from the lesion of 1922. The incubation was short. The lesions were believed to be chancroid for some time, but they resisted repeated applications of crude phenol and alcohol. There was a large inguinal bubo which threatened to suppurate, but did not.

Apparently, no dark-field examination was made at this time. When the blood Wassermann reaction again became positive some time later, it was considered to be a case of reinoculation of syphilis, and treatment was immediately begun as before. After ten treatments of mercury and arsenic, the patient was allowed to go on a vacation trip for a month, during which time he developed painful areas of periostitis on the right tibia and radius.

He returned with a strongly positive Wassermann test, and immediately another course of injections was started. He received two without any discomfort. There were no signs of impending disaster. The injection a week later was followed in the course of an hour or more by a feeling of faintness. He did not have chills, feel nauseated, vomit or have pain; but there was bleeding from the nose and gums, and within a few hours, spots of purpura appeared in several places, which cleared up within a few days. The bleeding had all ceased before noon the next day, and he thought that he was all right, and went for treatment as usual a week after his last injection. He was given another 0.9 gm. dose as before. As soon as the injection was finished, he went into a state of profound collapse (shock) on the table. He felt faint, with a

sensation of fulness in the head, marked cyanosis of the hands, and great general weakness. There were no flushing, fulness in the chest, nausea, vomiting, diarrhea, chills, convulsions or loss of consciousness. The physician thought the patient was going to succumb immediately.

In the course of an hour or so, he had recovered sufficiently to drive his own car home, a scant half hour's ride. He again nearly collapsed on reaching his destination, but managed to get to bed. Again he had severe bleeding from the nose, gums and rectum and the needle puncture wound of the intramuscular mercury injection, and for a few days he passed tarry stools. There was no pain in the abdomen. This time the bleeding was much more severe, lasting much longer. He bled from the gums for three or four days, and the purpura, which appeared a little later than before, lasted for about two weeks. He had hemorrhage both of large areas and petechial hemorrhage. There was never any bleeding into the lungs or the genito-urinary tract. There was no redness or inflammation of the skin and no evidence of jaundice.

He was not a "bleeder."

I regret that there had been no study of his blood before I saw him as a rapid recuperation of his hemopoietic system may possibly have taken place, as his blood was essentially normal when examined on the sixth or seventh day, i. e., there were 4,800,000 red cells—normal bleeding time. Coagulation time was normal. There was no diminution or apparent change in the platelets. The amount of hemoglobin was not reduced. There were no signs of an aplastic anemia. Is it possible that he had a sudden diminution in his platelets and almost as prompt recuperation—the so-called "platelet crisis"?

The other explanation is that some unusual change had taken place in the capillaries whereby their permeability was greatly increased, allowing the whole blood to escape into the skin.

Mallory has carried on some investigations on animals to produce hepatic cirrhosis by the injection of arsenic. Animals showing visceral hemorrhages have not shown changes in the blood picture, and an increased permeability of the capillaries seemed the most likely explanation of the hemorrhages. None of these animals has shown anything akin to purpura (personal communications from Parker, who did the work). It is not unlikely that both these factors may contribute in producing the changes seen in these cases.

Several articles have appeared in medical journals during the past three or four years bearing directly or in part on the action of arsphenamin on the blood forming system, on the coagulability of the blood or the sequence of purpura. Reports vary considerably as to the time at which purpura appears.

In cases of aplastic anemia that have occurred after the use of arsphenamin, as the platelets begin to fall below a certain point (100,000), the hemorrhagic syndrome ensues after two weeks or more.

On two occasions, purpura developed in our patient within a few hours after an intravenous injection of neo-arsphenamin.

A brief sketch of this man's subsequent history may be of interest. When I saw him first, the latter part of November, the areas of periostitis were still painful and tender. He had not been given iodids, which were now administered with prompt relief—while citrate of iron and quinin improved greatly his general condition.

Shortly after this, he was given mercury intramuscularly and later by inunction, but he soon reached the limit of toleration; the gums became tender, and he had slight nocturia, with slight general depression.

Mercury was stopped and iodid continued. In January, he had a circular, superficial, ulcerated lesion on the anterior pillar of the right tonsil, of sudden onset, which was not particularly painful. Clinically, it appeared to be Vincent's angina. He said that he had a similar condition while in France in 1917. Dark-field examination, however, revealed no Vincent's organisms but many *Spirochete pallida.*

The lesion healed after two or three weeks of local applications of chromic acid. It was followed later by a larger, deeper lesion on the left side. This healed under intramuscular injections of quinin bismuth iodid, and was in turn followed by a lesion at the base of the tongue, which the laryngologist who saw him believed was Vincent's angina. At this time, dark-field examination revealed fairly numerous fusiform bacilli and a few spirochetes, but no pallida were seen. There was considerable pus in the tonsils, and it seemed not unlikely that some of the general depression was due to septic absorption from this source.

His recent blood Wassermann test showed a strongly positive reaction. Regardless of the result of his present Wassermann test, it is obvious that he has not received an adequate amount of treatment, but what is to be done? Bismuth medication at four day intervals produced tenderness of the gums, and the organisms seemed to be both mercury and arsenic resistant. I have no desire to give him more arsenic, certainly not for some time to come.

At present he is receiving no antisyphilitic treatment—all our efforts are to build up his general health as much as possible, with the hope of developing a greater resistance to the invading germs, and then perhaps, later, to begin antisyphilitic treatment.

DISCUSSION

Dr. John H. Stokes, Philadelphia: I listened to Dr. Smith's paper with unusual interest. The condition he describes is undoubtedly rare in American practice. We recently had our first experience with it, and on going over the literature I find that the condition is sufficiently well known in Europe to have received a place in the Meirowsky statistics and to have assumed a definite name—aleukemia hemorrhagica. It is almost entirely a complication of the use of neo-arsphenamin. It will be recalled that Moore of Johns Hopkins described the characteristic blood picture of several cases some years ago. Our case followed the administration of sulpharsphenamin, which is, of course, closely related to neo-arsphenamin. In some cases, the purpuric picture seems to be uppermost; in others, the injury to the bone marrow, with a hematopoietic crisis followed by extreme leukopenia and later multiple hemorrhages is the sequence of events. In our case, the patient recovered after the hematopoietic crisis. Recovery is indeed a fortunate outcome, for the complication is extremely serious. As Dr. Smith says, it is tempting fortune to give a second injection after the slightest sign of a hemorrhagic complication.

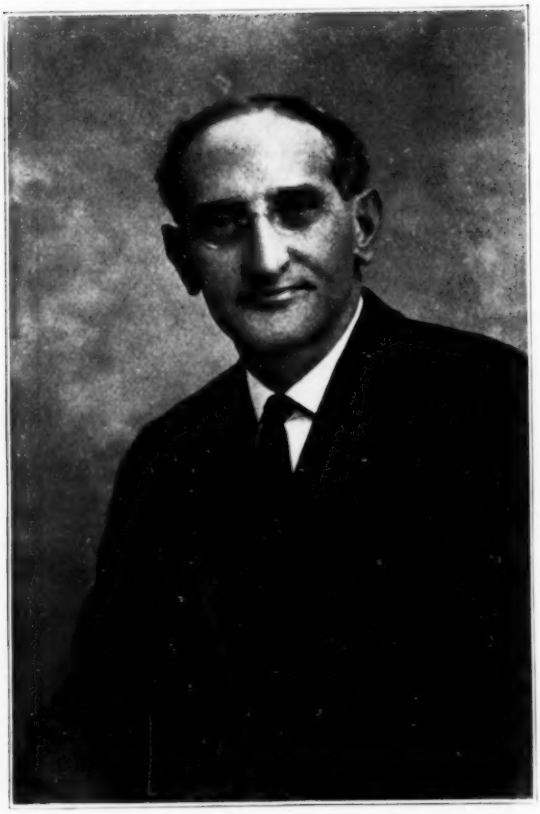
Dr. Jay Frank Schamberg, Philadelphia: I think this paper read at this time and before this Association is timely, because there has been an increased

incidence of these cases reported, chiefly from foreign sources, as Dr. Stokes has said. Few cases have been reported in the United States. Dr. Smith asks whether the increase in reports has been the result of more attention being paid to this condition, or whether this complication has perhaps been due to the use of the newer arsenicals. I believe his query may be answered affirmatively with respect to the latter proposition. You will recall that, according to the regulations of the United States Public Health Service, while arsphenamin may be administered to the experimental animal without subsequent ligature of the vein, after the injection of neo-arsphenamin the vein must be tied. In Washington, they have noted that there is an increased tendency to bleed from the femoral vein after neo-arsphenamin is given. This is even more true of sulpharsphenamin. Animals injected with sulpharsphenamin often bleed so severely that if the vein is not tied, the animal may bleed to death. I apprehend that if there is a large use of sulpharsphenamin, we will find an increased incidence of various forms of purpura, and perhaps with respect to the larger incidence of cutaneous complications after sulpharsphenamin, these may be related to the increased permeability of the vessels, or to some effect on the platelets.

Among the cases reported have been particularly cases of severe or fatal purpura hemorrhagica with profuse bleeding not only from the skin but from the mucous membranes.

One more point to be considered in this connection is that in treating any patient with a hemmorrhagic tendency, such as hemophilia, or a lesion of any organ that is likely to bleed, such as gastric ulcer, duodenal ulcer, tuberculosis, apoplexy, etc., we should be cautious about the use of any of the arsphenamins, particularly neo-arsphenamin and sulpharsphenamin. I have not seen any case of purpura reported in the literature that has developed after the administration of arsphenamin, but only after neo-arsphenamin and sulpharsphenamin. This is peculiarly of interest when taken in connection with the observed effects of these drugs on experimental animals.

Dr. C. Morton Smith, Boston: In looking up the subject, I did not attempt to bring in all the reported cases. I agree absolutely with Dr. Stokes and Dr. Schamberg regarding the cases reported abroad. I purposely omitted going into the question of benzol poisoning which occurs in rubber workers and produces similar blood changes. I wished also to bring this case to your attention in the hope of receiving some help regarding future treatment. This man apparently had serious internal hemorrhages, but he has had no symptoms since his recovery from these attacks. The injections were given by a careful, competent physician, but he failed to recognize the seriousness of the first reaction.



MARCUS HAASE, M.D.
1870-1924

Obituary

MARCUS HAASE

On Monday, Dec. 15, 1924, his friends all over the country were profoundly shocked at the untimely death of Marcus Haase. Dr. Haase died at his home in Memphis, Tenn., following a lingering illness. Late last summer he complained of feeling ill. He returned from his vacation with a low fever and feeling tired. He took to his bed, and for some time the diagnosis of his condition seemed to be in doubt. Subsequently, it developed that he had a streptococcus sepsis, which gradually undermined his strength, resisting all efforts, and finally resulted in his untimely death.

In his passing the field of cutaneous medicine has lost an earnest student, the South a patriotic citizen, his community an unselfish philanthropist, and his friends a loyal, devoted comrade.

Marcus Haase was born in Natchez, Miss., in 1870, the son of Gustave and Caroline Haase. His family had lived in the South for many generations. Early in in his boyhood, he came to Memphis, where he was educated in the public schools. He took his medical degree in the Memphis Hospital Medical School. Shortly after his graduation, he became interested in public health, and became a member of the Memphis Board of Health. His work in this field was so creditable that the United States Marine Hospital Service employed him to investigate and to take charge of an epidemic of yellow fever in the Mississippi Valley. His success in this field was followed by an assignment for the study of yellow fever and other tropical diseases in British and Spanish Honduras. He continued in public health work until 1905, when he decided to take up the field of dermatology.

He went abroad and spent some time in Austria, Germany, and France, spending some months in Hamburg with Unna, who frequently referred to him as one of his most promising pupils. He returned to Memphis after the completion of his European studies, and has been identified with the field of dermatology from that time until his death. He became a member of the American Dermatological Association in 1912. In 1923, he was elected chairman of the Section on Dermatology and Syphilology of the American Medical Association.

Shortly after his return from his European studies, he became associated with the University of Tennessee Medical School and in particular with the Memphis General Hospital. He served as secretary of the medical school for some years, and under his guidance both school and hospital progressed from relative obscurity to distinction.

In 1920, Dr. Haase associated with him Dr. C. H. Marshall, and from this time on devoted himself largely to philanthropic and social work in his native city. He was several times president of the Memphis Council of Social Agencies, and at the time of his death was a candidate for a loving cup given annually to the citizen rendering the greatest public service to the community.

During the war, Haase served with the rank of major, and was stationed during 1918 and 1919 at Lakewood, N. J., and was subsequently assigned to base hospital duty on Long Island.

A man of quiet demeanor, his modesty amounting almost to shyness, his death has brought out in the daily press and public utterances the high place in which he was held as a man of broad charity, a loyal citizen and as an unselfish humanitarian.

Haase was not a prolific writer, but those of his publications which did appear were marked by the thoroughness and intrinsic sterling honesty which were the outstanding characteristics of the man. He was a keen observer and an admirable clinician. His discussions at medical meetings were always brief, clear and to the point, and it was characteristic of him that he never took part in a discussion unless he was fully informed on the subject.

In the American Dermatological Association, perhaps as nowhere else, every member counted himself Haase's friend. A regular attendant at its meetings, he never pushed himself forward, but always made his quiet influence felt in the interest of harmony, love of truth and good fellowship.

Marcus Haase is gone. The spirit of his generous nature, his kind and affectionate friendship and the inspiration of his simple self-sacrificing life will always remain tender memories to those who knew and loved him.

U. J. W.

News and Comment

ARSPHENAMIN ERUPTION RESEMBLING LICHEN PLANUS

An article with the title given above, written by Dr. Edward Ahlswede, appeared in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY, April, 1924, page 479. A letter just received from Prof. Dr. A. Buschke, Dirigierender Arzt, and Dr. E. Sklarz, früherer Oberarzt, der Dermatologischen Abteilung des Städtischen Rudolf Virchow Krankenhauses in Berlin, calls attention to the fact that a similar article written by them was published in *Dermatologische Wochenschrift*, June, 1923, Vol. 76, Nos. 24 and 25,, and "that the article appearing in the ARCHIVES is merely a deduction of the original."

Abstracts from Current Literature

Roentgen Ray Treatment of Eczema. William J. Macdonald, Boston M. & S. J. **189**:926 (Dec. 6) 1923.

This is a report of sixteen cases of eczema cleared up by use of fractional roentgen-ray therapy.

Treatment of Neurosyphilis with Sulpharsphenamine: A Report of Thirteen Cases. R. D. Halloran, Boston M. & S. J. **190**:55 (Jan. 10) 1924.

The author discusses the treatment of thirteen advanced cases by intravenous and intramuscular injection, with spinal fluid changes comparable to those produced by other arsphenamins.

Metabolism Observations in a Case of Urticaria Scripta. Allan W. Rowe and Francis H. McCrudden, Boston M. & S. J. **191**:60 (July 10) 1924.

A case of chronic urticaria was studied carefully clinically and by extensive laboratory tests. Their findings indicate in this case an endocrine imbalance with the thyroid chiefly involved.

The Responsibilities of a General Hospital in the Control of Venereal Disease. Ora Mabelle Lewis, Boston M. & S. J. **191**:524 (Sept. 18) 1924.

This is a brief for the admission into general hospitals of persons with contagious venereal lesions.

Lane, Boston.

Acquired Syphilis of the Lungs. C. E. Hamilton, New York State J. Med. **24**:993 (Dec.) 1924.

This article contains a short summary and statistics of syphilis of the lungs, followed by a description of pathologic findings and symptoms. The chronic fibroid interstitial lesion is the most frequent, followed closely by gumma. The bronchopneumonic form is exceedingly rare. The lesions are most commonly located about the hilus and along the bronchi. The symptoms are diverse, varying from a slight irritative cough to hemoptysis and the expectoration of necrotic lung tissue. There is nothing in the symptoms by themselves to indicate the syphilitic nature of the process. The diagnosis is extremely difficult and generally is made by exclusion. The discovery of lesions about the hilus or in the lower lobes, in a patient with a history of syphilis or with a positive Wassermann reaction, whose sputum contains no tubercle bacilli, is sufficient to warrant a therapeutic test. The clinical symptoms often improve under treatment before there is any change in the physical signs.

Williams, New York.

The Wassermann Reaction as a Guide to Diagnosis and Therapy of Syphilis. Wilfrid Fox, Brit. J. Dermat. & Syph. **36**:93 and 144 (March and April) 1924.

This article covers about twenty-five pages in two issues of the journal, and gives a thorough discussion of the Wassermann reaction from a number

of standpoints, including its value as a guide in the differential diagnosis of those nonsyphilitic conditions which are likely to be taken for syphilis, its value as a guide to diagnosis in congenital syphilis, its usefulness as an indicator of the results of treatment, the worth of a negative reaction as evidence of cure or the absence of syphilis, its relation to immunity, and lastly, those nonsyphilitic conditions which may give a positive Wassermann reaction. With regard to the latter point, he writes: "The Wassermann substance, whatever it is, exists in small quantities in normal serum. In a few cases of most fevers at certain stages, in pregnancy and more particularly in eclampsia, where strong toxins are known to be circulating in the blood, this substance may be slightly increased; in malaria and leprosy still more so; in trypanosomiasis further still, and in yaws and syphilis it reaches its height. Exactly what proportion of these cases you will find giving a positive reaction will depend firstly, on the sensitiveness of your technique, and secondly, on whether you exclude those patients who suffer from syphilis as well, which is a very common source of error."

SENEAR, Chicago.

THE PRESYMPTOMATIC PHASE OF GENERAL PARALYSIS. CLAUDE TARGOWLA and SANTENOISE, Presse méd. **32**:89 (Jan.) 1924.

It is well known that general paralysis may be ushered in not only by simple dementia, primary or secondary to tabes, a number of psychopathic conditions, for example, neurasthenia, melancholia, maniacal and confusional states, etc. The authors came to the following conclusions after analyzing their cases: First, latent meningitis of neurosyphilis may appear in the secondary period or at any time later. Examination of the spinal fluid may show the cerebral lesions in full evolution even in early cases. Second, general paralysis is a primary anatomic manifestation of neurosyphilis which from the clinical point of view develops slowly by a characteristic syndrome of dementia. However, in the very early stages encephalitis may be a substratum for psychoses of banal character (melancholia, mania, etc.). These psychic troubles are in reality indicative of paralytic lesions in an initial stage. Third, clinically, a differential diagnosis from the banal psychoses may be impossible, and the spinal fluid must decide the question. Fourth, proper and intensive treatment has warded off general paralysis in numerous cases.

THE TREATMENT OF ANGIOMA. P. DEGRAIS, Presse méd. **32**:1713 (Oct.) 1924.

The author divides angiomas into a level vascular spot or port-wine mark and the elevated or tuberous angioma with more or less infiltration into the underlying tissue.

He states that a successful form of therapy should fulfil three conditions—painlessness, practicability in application and the production of a good cosmetic result.

Of all the known methods (electrolysis, carbon dioxid snow, hot air, roentgen rays, surgery, etc.), radium is the one of choice. It has a selective action on the vascular connective tissue, which it changes until a progressive obliteration of the capillaries results. It may also be employed immediately after birth without causing inhibition of the growth of any other organs. The younger the angioma, the more sensitive it is to the rays of radium. Therefore, radium is the method of choice.

MCCAFFERTY, New York.

DERMATOLOGIC ABSTRACTS

The Journal of the American Medical Association

Prevention of Cardiovascular Syphilis. W. D. Reid, Am. J. Syphilis **8**:609 (Oct.) 1924.

The prevention of cardiovascular syphilis, Reid says, is primarily that of syphilis. After the latter infection has been acquired, efforts should be directed toward the prevention of serious damage to the heart and aorta. This requires diagnosis of the condition at an early stage and the institution of adequate treatment. Reid suggests the use of a terminology which clearly indicates the syphilitic origin of the disease.

Syphilis of Prostate. A. C. Starry, Am. J. Syphilis **8**:615 (Oct.) 1924.

Starry reports a case of syphilis of the prostate, in which typical syphilitic lesions were found in the prostate gland, associated with the presence of spirochetes of syphilis in the lesions.

Syphilis. XV. Excretion of Arsenic Through Kidney After Intravenous Administration of Arsphenamin, Neo-Arsphenamin, Silver Arsphenamin and Tryparsamide. J. A. Fordyce, I. Rosen and C. N. Myers, Am. J. Syphilis **8**:619 (Oct.) 1924.

The data presented by Fordyce et al. show conclusively that there is a distinct connection between chemical constitution and physiologic action as well as a relation between the two routes of excretion. These two types of drugs clinically parallel the phenolsulphonephthalein test for kidney function and the phenoltetrachlorphthalein test for liver function. The experiments also show that there is a relationship between the late arsenical reactions and the failure to excrete.

II. Retention and Elimination of Silver with Special Reference to Silver Arsphenamin and Silver Therapy. C. N. Myers and H. B. Corbitt, Am. J. Syphilis **8**:704 (Oct.) 1924.

Examination of the results obtained by Myers and Corbitt by the repeated injection of silver arsphenamin in rabbits shows that more than 90 per cent. of the silver injected is excreted in a period of seven days after the last injection. This occurs even with massive doses, twenty times those used clinically. When nearly clinical doses are used, the excretion is almost complete.

Neurosyphilis. L. H. Cornwall and C. N. Myers, Am. J. Syphilis **8**:726 (Oct.) 1924.

Experiments made by Cornwall and Myers suggest that slightly more arsenic penetrates the spinal cord than the brain. These results add weight to the opinion that the direct addition of arsenic to the spinal fluid has a justifiable basis. It increases the arsenic in the fluid where its spirochetal action may operate for at least ninety-six hours following administration. Arsenic remains in the spinal fluid for a much longer period but the authors are not prepared at present to state the maximum time that it may remain there.

Provocative Kolmer Complement Fixation Test for Syphilis. S. S. Greenbaum, Am. J. Syphilis **8**: (Oct.) 1924.

Greenbaum and Wright are of the opinion that the adoption of Kolmer's standardized complement-fixation test for syphilis removes an important criticism against the use of the provocative test.

SEROLOGIC REACTIONS IN SYPHILIS. H. L. KEIM, Ann. clin. méd. **3**:292 (Oct.) 1924.

Keim is of the opinion that one of the fundamental errors which has occurred in conjunction with the use of serologic tests in cases of syphilis has been their employment as an absolute guide to therapeusis. The degree of positiveness of a reaction cannot then be an absolute index for the amount of treatment necessary.

PURPURA HEMORRHAGICA. W. F. HAMILTON and T. R. WAUGH, Ann. clin. méd. **3**:298 (Oct.) 1924.

Hamilton and Waugh cite the cases of three girls, aged from 15 to 20, who, while never specially robust, showed at about puberty the tendency to bleed spontaneously into the skin and from mucous membrane, nose, mouth, uterus and digestive tract. The bleeding was greatly increased in two of the patients at the time of menstruation; slight pressure to the skin was followed by signs of bruising. While a few spots had been seen on the skin and an occasional slight nose bleed had been present in two cases, yet it seemed that there was in these patients a rapid change from comparative health to illness of a severe degree. Diarrhea with much blood in the stools in one case, excessive bleeding at the nose and moderate menorrhagia in another, while in the third case nasal and uterine bleeding seemed to account for this rapid change. Retinal hemorrhages were common to the group. While the clinical signs are characteristic of purpura hemorrhagica, yet on the morphology of the blood mainly depends the diagnosis — that of essential thrombopenia or thrombocytopenia. A careful study was made of the blood cells and the findings are discussed. The authors incline to the view that in the true essential thrombopenia there is present a constitutional angiopathy, with which or possibly as a result of which there occurs a dyscrasic myelopathy, characterized particularly by thrombopenia.

SARCOMA OF NOSE; CASE TEN YEARS AFTER OPERATION. G. A. MOORE, Arkansas M. Soc. J. **21**:926 (Oct.) 1924.

Moore reports a case said to be unusual (1) because of the situation of the growth. Only one other case has been found in the literature limited to the cartilaginous portion of the nose. (2) The problem in differential diagnosis between sarcoma, inflammation and rhinophyma. (3) The apparent complete freedom from extension or metastases ten years after removal of the growth. (4) The radical method of treatment. Apparently this is the only case of sarcoma of the nose treated by amputation.

BLOOD VISCOSITY IN TROPHIC DISTURBANCES OF CIRCULATION. W. G. STERN, J. Bone & Joint Surg. **6**:902 (Oct.) 1924.

Angiotrophosis, which includes the so-called Buerger's disease or thromboangiitis obliterans, is the only disease with a normal red blood count in which a high viscosity is not an unusual exception. In this disease 85 per cent. of all cases investigated by Stern had blood viscosities of 4.8 or over. This finding, the presence of painful papules, the clinical pictures of trench foot and the clinical course of many cases confirms Stern in his opinion that this entire group of conditions is more or less related and is usually amenable to treatment. In the immediate case the treatment should consist of rest in bed, bland diet,

heat in the form of continuous electric light baths to the extremities, the ingestion of from 4,000 to 6,000 c.c. of Ringer's solution by means of the duodenal tube, and sodium iodid intravenously. After the acute symptoms have subsided, the treatment should consist in an entire change in the habits of the individual in order to diminish the functional demands on the local circulation, and the avoidance of all forms of toxic absorption from whatever source, the circulation exercises devised by Buerger, and at the same time the ingestion of large quantities of water to keep down the blood viscosity. The body must at all times be protected from being chilled or compressed, not an easy matter in these days of light clothing, openwork shoes and stockings, and tight, narrow shoes.

Influence of Radium on Tumor Susceptibility in Albino Rats. K. Sugiura, J. Cancer Res. **8**:376 (Oct.) 1924.

The growth of the Flexner-Jobling rat carcinoma in untreated suckling rats was compared by Sugiura with the growth of similar animals after irradiation with radium emanation. A total of 143 untreated animals and of 337 irradiated animals was studied. As a result of this work he concludes that preliminary irradiation of suckling rats with radium emanation is practically without influence on the susceptibility of these animals to Flexner-Jobling rat carcinoma. There are, however, indications that the suberythema doses, or mild radiations, confer a very slight immunity, while larger doses have the opposite effect. Such action, if it exists at all, is so slight that experiments with several thousand animals would probably be necessary to settle definitely the question involved.

Effect of a Constant Ration Containing Many Vegetable Proteins on the Incidence of Spontaneous Tumors in Mice, M. C. Marsh, J. Cancer Res. **8**:385 (Oct.) 1924.

The results of Marsh's experiments were negative. A ration composed of nineteen crude raw foods, chiefly grains and seeds, was fed continuously throughout their lives to albino nonbreeding mice of inbred tumor strain. The tendency to develop tumors was not increased thereby.

Comparison of Effects of Various Salts on Cancer Cells and Normal Cells. L. Herly, J. Cancer. Res. **8**:389 (Oct.) 1924.

Herly states that normal cells and cancer cells are equally damaged by incubation at 37 C. in a considerable volume of physiologic sodium chlorid solution, slightly less injured by incubation in Ringer's solution, and least by Locke's solution. No difference between the effects of these three solutions on the cancer cell and the normal cell was found.

Immunologic Studies in Tuberculosis. II. Skin Hypersensitiveness in Experimental Tuberculosis. S. A. Petroff, J. Immunol. **9**:309 (July) 1924.

The interesting point brought out by Petroff in his second series of experiments is that even as small an amount as 3.75 mg. of killed tubercle bacilli can set up a skin hypersensitive state which persisted in one animal for 382 days. There is no question as to the sterility of this material, because in no instance was there generalized tuberculosis in any of the animals, and

no abnormality in these experiments could be observed. It is held to be likely that skin hypersensitiveness persisted in these animals, for the reason that foreign particles of tubercles were present in the animal.

ENLARGEMENT OF THYMUS. F. F. HARDY, Michigan State M. Soc. J. **23**:403 (Oct.) 1924.

Hardy reports eighteen cases of enlarged thymus in which radium therapy was given. In six cases untoward symptoms arose after the use of radium. In one case bronchopneumonia, in an unusually severe toxic form, developed on the second day following the use of radium, and resulted fatally. In another case a week of severe convulsions occurred. Other complications were subnormal temperature and cyanosis; very severe convulsions associated with periods of cyanosis; increase in the cough, periods of cyanosis and suspended respiration occurred during the week following the use of radium. In three cases complete blood counts and nonprotein blood nitrogen determinations were made before and after the use of radium. Immediately after the use of radium a moderate leukocytosis occurred with a small increase in the polymorphonuclears, and an increase in the nonprotein blood nitrogen of about 50 per cent. In these infants the normal nonprotein blood nitrogen varied. The dose of radium used was that generally employed, 800 mg. hours. In addition to the usual silver filtration, 2 mm. of lead was added to filter out the rays which were likely to produce hyperemia or burns.

LATE CONGENITAL SYPHILIS. P. A. O'LEARY, Minnesota Med. **7**:651 (Oct.) 1924.

The classical stigmas of congenital syphilis are described by O'Leary, and statistics are given as to the frequency with which certain of the stigmas are found. The serologic findings in a given group are emphasized in order to impress the fact that if only the Wassermann test of the blood is depended on for diagnosis only 70 per cent. of the cases of late congenital syphilis will be diagnosed correctly. Neurosyphilis was revealed in only 14 per cent. of the children examined serologically, in contrast to 32.7 and 28.8 per cent., respectively, as reported in the literature. Attention is called to the need of corroborative aids, such as examinations of the eye and ear, roentgen-ray examinations, and serologic tests in certain of these patients.

SPOROTRICHOSIS. J. F. GARDINER, Nebraska M. J. **9**:408 (Oct.) 1924.

Gardiner's case emphasizes the point that lesions of a nodular character occurring on the body, which do not tend to heal under ordinary surgical methods, should be investigated for the presence of fungi. His patient, when first seen, had had these boils for about six months.

MODIFIED ROENTGEN-RAY IRRADIATION TECHNIC. W. L. CLARK, J. D. MORGAN and E. J. ASNIS, Radiol. **3**:273 (Oct.) 1924.

It would appear from clinical observations, made by Clark et al. supported by histologic findings, that the normal reactions in the healthy tissue surrounding a cancer may be aroused by considerably smaller irradiation dosage than it has been customary to employ in the past. By using these small, frequently repeated, doses it is possible not only to initiate the reactions, but also to continue them, as the healthy tissues remain uninjured. The authors believe

that, if we can surround the cancer cells with sufficeint leukocytes and keep up the supply by a continued body reaction, heavy irradiation dosage is unnecessary.

INTRATHORACIC CHANGES FOLLOWING ROENTGEN-RAY TREATMENT. CLINICAL AND EXPERIMENTAL STUDY. K. S. DAVIS, Radiol. **3**:301 (Oct.) 1924.

Davis asserts that intensive roentgen-ray treatment can produce pulmonary and pleural lesions in normal animals. Two main types of changes are observed: the acute, characterized by marked edema and congestion, and the chronic, in which fibrosis and possibly atelectasis, play the major part. In certain clinical cases definite infiltration of the lung is observed in the roentgenogram together with pleural involvement, following intensive roentgen-ray treatment, directed to the thorax. In view of the experimental findings in animals, it is very probable that similar changes take place in the lungs and pleura in clinical cases. For these reasons it would seem that conservatism is indicated in roentgen-ray treatment of carcinoma of the breast and other superficial malignant lesions of the wall of the chest. It would seem that the less penetrating type of irradiation is preferable in such cases.

ENDOCRINE THERAPY IN INFANCY AND CHILDHOOD. J. HOWLAND, South. M. J. **17**:743 (Oct.) 1924.

Howland says: The conclusion is forced on us, and it is a conclusion to which physiologists and pharmacologists will subscribe, namely, that if we use single extracts in pediatrics we are confined to the treatment of two conditions, thyroid deficiency and diabetes. Uniglandular therapy then is, in general, unsatisfactory. Polyglandular therapy has come into being on the supposition that not infrequently there is a disordered activity of several glands, a failure of coordination among them. For the belief that numerous glands may be affected in such ways as to produce various clinical syndromes there is no pathologic proof available. Similarly, there is no chemical or physiologic proof of the existence of such conditions. The fact that gradual improvement follows the administration of a heterogenous mixture of gland extracts is not sufficient evidence to prove that a gland or group of glands is the cause of a clinical picture. One must demand a striking and almost immediate change. One must also demand pathologic or physiologic or chemical evidence. The clinician of the present day is in danger of losing his clinical sense and his critical judgment. He leans too much on laboratory methods for his diagnosis.

ECZEMA AS AN ALLERGIC PHENOMENON. W. T. VAUGHAN, South. M. J. **17**:749 (Oct.) 1924.

The effect of adventitious factors, acting nonspecifically to excite a specific reaction in sensitized persons, is particularly prominent in eczema. This disease is a manifestation of an allergic imbalance. Such an interpretation explains the good results of nonspecific treatment and, Vaughan says, reconciles these results with the conception of eczema as a specific allergic disease.

CRAW-CRAW IN SIERRA LEONE. Ann. Trop. Med. & Parasitol. **18**:253 (Oct. 31) 1924.

The disease called craw-craw in Sierra Leone is identical with scabies. The parasite which gives rise to it is identical morphologically with *Sarcoptes scabiei.*

ECTOGENITAL CHANCRE. G. A. M. HALL, Brit. M. J., p. 899 (Nov. 15) 1924.

In the case cited by Hall a hard mass occupied the bulbar conjunctiva below and to the inner side of the cornea. This mass had a very definitely cartilaginous feel, was well circumscribed, and was slightly concave forward. It was ulcerated in the center, leaving a raw area with a thin serous crust, which on removal produced a free serous discharge and a few fine points of hemorrhage. Smears showed *Spirochaeta pallida* in very large numbers. The husband and the father of the patient were seen at the same time, and no signs of a recent or old syphilitic infection could be found. Active syphilis in other members of the family was denied.

TREATMENT OF ORIENTAL SORE BY PHOSPHORUS. A. CASTELLANI, J. Trop. Med. & Hyg. **27**:263 (Oct. 1) 1924.

The preparation of phosphorus used by Castellani in the treatment of oriental sore is the oleum phosphoratum B. P. It is applied externally to the sore, and given by injections (from 3 to 5 minims) into the nodule and under the skin around it. When the ulcerative process is fairly developed, the simple external application of the oil (after removing the scab), without any injection, seems to be sufficient to induce a cure. It would appear also that in certain cases of the nodular type, it is not essential to inject the oil into the nodule, the subcutaneous inoculation in close vicinity to it would seem to be sufficient. It is suggested that the treatment might be tried in other leishmanial conditions, and also in certain cases of ulcers of nonleishmanial origin, such as granuloma inguinale, ulcus tropicum and certain persistent tropical ulcerations of obscure origin.

COMPLEMENT FIXATION IN LEPROSY WITH DEFATTED BACILLUS TUBERCULOSIS ANTIGEN. J. TAYLOR and R. H. MALONE, Indian J. M. Res. **12**:127 (July) 1924.

A complement fixation test for leprosy with a "defatted" *B. tuberculosis* antigen is described by Taylor and Malone and the results in 100 cases of leprosy, along with suitable controls, are recorded. The antigen is a saline suspension of *B. tuberculosis* "defatted" in accordance with Dreyer's procedure and standardized by opacity. In 100 cases of leprosy tested—tubercular, nerve and mixed cases have given positive results in 100 per cent., 96 per cent. and 92 per cent. in these three classes, respectively. The standard of a positive result has been taken as complete fixation of at least 2 M. H. D. of complement and in many cases fixation up to six doses was obtained. Fourteen normal controls and twenty-three Wassermann-positive syphilitic controls have given completely negative results with the test. With serum from thirty cases of tuberculosis positive results have been obtained in 20 per cent. only, but as partial reactions are accepted the percentage will be increased to 40.

EFFECT OF ANTISYPHILITIC TREATMENT ON WASSERMANN REACTION IN LEPROSY. R. B. LLOYD, E. MUIR and R. G. C. MITRA, Indian J. M. Res. **12**:213 (July) 1924.

Lloyd et al. concluded that syphilis is an important complicating factor in both types of leprosy, and that antisyphilitic treatment should accordingly be given in all cases of primary nerve leprosy with a positive Wassermann reaction, and in skin cases with a positive Wassermann reaction when a venereal history is obtained or when the case is refractory to other treatment.

Treatment in Different Stages of Syphilis. Golay and Weyl, Ann. mal. vén. **19**:721 (Oct.) 1924.

Golay and Weyl point out that syphilis, which is a more generalized disease in the secondary period, is more localized in the tertiary stage. Consequently, they believe that treatment, although necessarily prolonged and consisting of repeated courses, may be less intensive in the tertiary stage.

Intolerance to Bread. A. Flandin, Bull. et mém. Soc. méd. d. hôp. de Paris **48**:1376 (Oct. 17) 1924.

Flandin observed during the war some cases of anaphylaxis to bread, made of whole wheat, in which desensitization was induced by ordinary bread. In some the whole wheat bread exerted the toxic action, in others, oridinary fresh bread. General or specific procedures for densitization usually failed completely.

Diphtheria Anatoxin Skin Test in Children. Lereboullet et al., Bull. et mém. Soc. méd. d. hôp. de Paris **48**:1378 (Oct. 17) 1924.

Lereboullet, Boulanger-Pilet and Lelong employed the diphtheria anatoxin skin test in children, and found the same phenomena as Zoeller found in adults. They agree that the reaction reveals a special hypersensitiveness to the proteins of the diphtheria bacillus. It testifies to an incomplete immunity, diphtheria allergy. They believe that Zoeller's test, like the Schick test, should be introduced into current routine practice. It does not parallel, but supplements the Schick reaction.

Skin Discoloration in Diabetics. M. Labbé, Bull. et mém. Soc. méd. d. hôp. de Paris **48**:1424 (Oct. 24) 1924.

Labbé calls attention to a yellow discoloration of the palms and soles which occurs in some diabetics. He attributes this phenomenon to the pigment, lipochrome, and consequently suggests a diet poor in lipochrome content. Yolk of egg, spinach, salads, green vegetables, carrots, maize, butter and milk should be excluded.

Gold Test in General Paralysis. Sicard and Haguenau, Bull. Soc. méd. hôp. **48**:1517 (Nov. 14) 1924.

Sicard and Haguenau believe that the more favorable American and Austrian statistics in regard to successful treatment of general paralysis may be explained by inclusion of certain cases of cerebral syphilis among those treated for general paralysis. They have simplified the colloidal gold test, and declare that cases suspected of general paralysis, with a positive reaction in the cerebrospinal fluid to this test, are incurable. Recovery may occur with a negative response to their modified test.

Xanthoma in Syphilitic with Diabetes. Bull. Soc. méd. hôp. **48**:1531 (Nov. 14) 1924.

Rathery and Gournay observed this case in a man, aged 50. Under treatment for syphilis the xanthoma disappeared, while carbohydrate assimilation increased. The xanthoma reappeared whenever unsuitable diet overstepped the tolerance limit. The connection between carbohydrate assimilation and fat metabolism may explain the effect on the xanthoma, which is not of syphilitic origin.

RÔLE OF SKIN IN MOVEMENTS. M. OZORIO DE ALMEIDA, Compt. rend. Soc. de biol. **91**:878 (Oct. 24) 1924.

Ozorio de Almeida's experiments on frogs, in which the skin was removed from limbs, showed that coordination of movements, and sense perception of attitudes are directly dependent on the skin. A similar influence of the skin was manifest in dogs and snakes.

ROENTGEN-RAY EXPOSURE AFTER MAMMECTOMY. M. BÉCLÈRE, J. Radiol. et d'electro **8**:385 (Sept.) 1924.

Béclère is convinced that a single intensive irradiation is dangerous, as it augments the proportion of recurrences. Repeated irradiations of moderate doses seem to be efficient. Their action is limited to the exposed region, not passing beyond the limits of the chest.

ADDISON'S DISEASE WITH ACROPARESTHESIA. A. HANNS, Rev. franc. d'endocrinol. **2**:265 (Aug.) 1924.

Hanns describes a case of Addison's disease accompanied by acroparesthesia, thus adding a second case to the one observed by him two years ago. He claims that no other cases have been published to date. The vasomotor disturbances were marked by ischemia, stiffness and numbness in the fingers. The attacks were brought on by cold, and persisted from fifteen to thirty minutes.

CHICKENPOX MENINGITIS. G. DE TONI, Policlinico **31**:1434 (Nov. 3) 1924.

Toni observed a serous meningitis with xanthochromia, lymphocytosis (78 cells per c.mm.) and increased globulin content of the cerebrospinal fluid. The affection occurred twenty days after a chickenpox eruption, and the child, aged 3, recovered.

CHIEF CAUSES OF DEATH AMONG LEPERS AT CULION LEPER COLONY. C. B. LARA, D. DE VERA, J. G. SAMSON and F. C. EUBANAS, Philippine M. J. **4**:289 (Aug.) 1924.

During the last two years, the chief causes of death among lepers at the Culion Leper Colony were: tuberculosis, 52 per cent.; nephritis, 13.3 per cent.; organic heart diseases, 8 per cent.; leprosy, 4.6 per cent.; bronchopneumonia, 3 per cent.; malaria, 2.6 per cent.; dysentery and enteritis, 2.5 per cent.; and gangrene, infected wounds and other septic infections, 2.3 per cent. The authors state that leprosy treatment in the form of chaulmoogra derivatives, especially the ethyl esters, tends to increase the death rate among tuberculous cases; it definitely increases mortality from nephritis. The increase in the deaths due to acute cardiac failure (acute dilatation) cannot be attributed to the treatment; its association with the increase in nephritis is suggestive of a possible relation between the two, but beriberi should also be considered as a possible cause. Leprosy treatment in the advanced cases apparently does not decrease the number of deaths due to leprosy; in fact, in a few cases it seems to precipitate an acute, fatal flare-up of the disease. Finally, leprosy treatment at the Culion Leper Colony during the last two years has not diminished the mortality; on the contrary, its routine use in all cases has tended to increase it. This fact strongly emphasizes the necessity of selecting cases for treatment and of giving this treatment scientifically.

SOOT CANCER. H. HAUFF, Beitr. klin. Chir. **132**:633, 1924.

After a single prolonged exposure to the smoke of a fire which the man, aged 26, was fighting, there was no actual burn, but the side of the face where a sarcoma had been resected, two years before, developed carcinoma, recurring after repeated resection. Hauff thinks the case can be regarded as a soot cancer affecting a predisposed area.

FURUNCLES IN THE FACE. R. DITTRICH, Beitr. klin. Chir. **132**:671, 1924.

Dittrich stresses the importance of fever as a sign of a malignant tendency with furuncle of the face. The lesion was on the upper lip in nearly 50 per cent. of his 88 cases, and 10 per cent. in this lip group died. In the early, mild forms of furuncle of the lip, the main thing is to leave the lesion unmolested; at most, an alcohol cataplasm or boricated ointment or pure ichthyol, feeding fluids through a tube and forbidding the use of the voice; no compression, no early incision. In the graver forms, 5.9 per cent. died of the 61 per cent. of the total 88 cases treated by incision; none of the nonincised patients died. In the 40 upper lip furuncles, 13.6 per cent. died of the 22 patients in this group treated by incision, and 5.5 per cent. of the 18 not incised. A toothpick dipped in phenol and introduced, in the direction of the hairs, into the white center of the furuncle gave good results, as also electrocauterization with fine needles.

TREATMENT OF ECZEMA. A. J. LEBEDJEW, Dermat. Wchnschr. **79**:1003 (Aug. 30) 1924.

Lebedjew ascribes an important part to the nervous system in the origin of eczema. He has witnessed in others and watched in himself the flaring up of eczema under emotional stress. Treatment must aim to soothe the nervous system, and he has had success with intravenous injections of a 1 or 10 per cent. solution of sodium bromid in physiologic saline. In one case of universal weeping eczema, that had developed the day after a nervous shock, a complete cure was realized with 15 gm. of sodium bromid given by the vein in twenty-one days. In fifty-five cases the result was often as striking as under specific treatment of syphilis, especially in acute eczema and acute psoriasis.

PITYRIASIS ROSEA IN INFANTS. J. BREUER, Deutsch. med. Wchnschr. **50**:1447 (Oct. 17) 1924.

Breuer attributes pityriasis rosea in infants to the use of new unwashed clothes.

TWINS AND NEVI. LEVEN, Deutsch. med. Wchnschr. **50**:1580 (Nov. 14) 1924.

Leven demonstrates by the slight differences in the papillary lines in univitelline twins that there is an extreme similarity, but not identity. Consequently, the differences in the nevi in such twins do not disprove their hereditary origin.

ACTIVE IMMUNIZATION AGAINST SARCOMA. V. E. MERTENS, Deutsch. Ztschr. f. Chir. **187**:216 (Oct.) 1924.

Mertens gives a profusely illustrated description of his success in treating a white mare, 14 years old, with a large ulcerating melanoma between the tail and the anus. It partially subsided under the influence of phenol-treated

cells from a metastatic tumor in the abdominal wall or from the primary melanoma. One part of the finally ground tumor cells was mixed with 9 parts of physiologic sodium chlorid solution, with addition of 1 c.c. of 5 per cent. phenol solution, and the vials were shaken by hand occasionally during the first days. The injection was made subcutaneously in the neck, the dose 20 c.c. each time, a total of 9 gm. of tumor tissue in thirty-three days. The extensive ulcerating surface of the primary melanoma healed over, the previously fetid odor disappearing permanently. Further injections were made to a total of 14 gm. of tumor substance in the fifty-nine days, the tumor subsiding in size. Two other courses of similar treatment were made, obtaining the material from the primary melanoma and the metastatic tumors. When the animal was slaughtered, melanin was found widely distributed through the organs, which he accepts as testifying to extensive destruction of the tumor cells. He regards it as most significant that under the influence of the injections there was no proliferation of the sarcoma when pieces were excised from it. Also that the phenol treatment did not apparently impair the immunizing properties of the cell suspension. But most important of all was the retrogression and greater movability of the parts of the tumor left, making them operable, especially as the general condition improved. White patches developed on the skin of the body, head and mouth as the tumor shrank in size. These effects were realized with a total of 44 gm. of tumor tissue, to a weight of 380,000 gm. This corresponds to 5.2 gm. of tumor tissue for a man weighing 60 kg. When the suspension was treated with heat (to kill streptococci casually present), in addition to the phenol, the effect was apparently less pronounced. The mare was under observation from July, 1922, until it was slaughtered, Dec. 5, 1923.

Erythema Nodosum and Tuberculosis. Faerber and Boddin, Jahrb. f. Kinderh. **106**:293 (Aug.) 1924.

Faerber and Boddin's observation of twenty-three children proved that erythema nodosum does not exert an unfavorable influence on tuberculous infection, neither on a latent tuberculosis, nor on an infiltration of the hilum, which did not develop into a tuberculous affection. Retrogression of the foci, even without any treatment, has been noted. Two of the twenty-three have shown no signs of tuberculosis on repeated examination. The others responded positively to tuberculin tests from the beginning.

Congenital Hemorrhagic Purpura. K. Waltner, Jahrb. f. Kinderh. **106**:307 (Aug.) 1924.

Waltner reports a case of hereditary purpura haemorrhagica. The mother, aged 38, who had suffered from a tendency to purpura since puberty, presented at the seventh month of the pregnancy purpura, metrorrhagia and epistaxis. Examination of the blood confirmed the diagnosis of hemorrhagic thrombasthenia with Werlhof symptoms in the new-born infant as well as in the mother.

Malaria Treatment of Paralysis. Kirschner and van Loon, Klin. Wchnschr. **3**:2001 (Oct. 28) 1924.

Kirschner and van Loon observed in Java a threefold higher relative incidence of general paralysis in Europeans, compared with Asiatics. Tabes is one of the rarest diseases in Java and Indo-China. Many paralytics were absolutely immune against inoculation of malaria.

PHLEGMONS AND THEIR TREATMENT. R. EDEN, München. med. Wchnschr. **71**:1338 (Oct. 13) 1924.

Eden is skeptical with regard to various newer methods of treatment of phlegmons. He never saw any benefit from infiltration of the wound with germicidal fluids. Roentgen-ray treatment seems to help sometimes, especially in felons, but it fails in other cases. The basis of treatment is the knife.

MALARIA TREATMENT OF SYPHILIS. J. KYRLE, Wien. klin. Wchnschr. **37**:1105 (Oct. 23) 1924.

Kyrle had further excellent results with malaria treatment of latent syphilis with changes in the cerebrospinal fluid. The lymphocytosis disappeared regularly, although he was not able to bring the fluid completely to normal conditions in all the cases of long standing. There were no failures when the treatment was instituted within one year after the infection. Only three clinical recurrences were observed among the 205 patients in this group, treated with one course of arsphenamin-malaria-arsphenamin. Therefore he instituted this treatment even in syphilitics with normal cerebrospinal fluid. He declares that the results of this one course surpass those attainable by any other method. He starts with a course of neo-arsphenamin (3 gm. within four weeks) and follows with malaria. He gives during or after the eleventh attack, 0.5 gm. of quinin intravenously, and repeats the dose in eight hours. The next day, 0.45 gm. of neo-arsphenamin is given; within the next twenty-four hours it is followed by two injections of quinin, eight hours apart. Then he continues with neo-arsphenamin, giving 3 gm. in four weeks. Sometimes 5-6 gm. have to be administered. He lost two patients with weak hearts. No recurrences of malaria were observed. Patients who were intolerant to arsphenamin before having the malaria, had no disturbances from it afterward.

PHARMACOLOGY OF BISMUTH. E. POLÁK and A. MLÁDEK, Casop lek. cesk. **63**:1549 (Oct. 25) 1924.

Polák and Mládek report on the toxicology of an insoluble bismuth preparation. They obtained with larger doses in animals only a subacute poisoning. The predominant changes were in the kidneys.

WARTS. BONJOUR, Schweiz. med. Wchnschr. **54**:748 (Aug. 14) 1924.

Bonjour believes that warts are due to psychic causes, that he cured them by suggestion within one to five weeks, and that the popular procedures act in the same way.

REACTION OF THE BLOOD TO ROENTGEN IRRADIATION. D. DEN HOED, Nederlandsch. Tijdschr. v. Geneesk. **2**:1707 (Oct. 4)) 1924.

Den Hoed insists that roentgen-ray treatment of cancer involves biology more than physics. The exposure is followed by high leukocytosis, but the leukocyte count then drops to far below normal. In a few instances there was no initial rise. This extreme leukopenia warns not to repeat the exposure until the blood count has returned approximately to normal.

RECURRENCE OF MEASLES. H. W. BERINSOHN, Nederlandsch Tijdschr. v. Geneesk. **2**:1864 (Oct. 11) 1924.

Berinsohn has found recurrence of measles recorded in 5 per cent. of eighty infants; in 2.2 per cent. of 314 children, aged from 1 to 3, and in 1.2 per cent. of 415 between 4 and 7, and none above this age.

Length of Incubation Period in General Paralysis. F. Wiesel, Acta Med. Scandinav. **61**:661 (Oct. 15) 1924.

Wiesel relates that in 163 men and twenty-five women — out of a total of 321 men and 115 women — all with general paralysis, the date of the first infection with syphilis was known. In 27 per cent. the interval was more than twenty years. In 19 per cent., less than ten years, the average over sixteen years. No connection could be discovered between the length of the interval and the age at infection, the sex, the intensity of the mercurial treatment, heredity, stigmata of degeneracy, physical robustness or debility or addiction to alcohol. The only conditions which seemed to have a possible influence on it were overexertion, worry and epidemic influenza.

Gonococcus Sepsis. E. Bruusgaard and T. Thøtta, Norsk. f. Mag. Lægevidensk **85**:809 (Oct.) 1924.

The young man was brought to the hospital as a case of purpura, but gonococci in the blood and spinal fluid corrected the diagnosis to gonococcus sepsis with meningitis and purpura. The gonococci were cultivated further from the fresh purpura patches with an erythematous aspect. Bruusgaard and Thjøtta regard the dermatosis as the equivalent of metastases in internal organs. Lumbar puncture displayed a notable curative action, and the young man recovered. He was treated with antimeningococcus serum, but no special benefit from this could be detected. The case teaches the importance of examining the very latest efflorences in seeking for the microbian cause of a blood-borne eruption. Even a few hours' delay was enough to make the bacteriologic findings negative.

Pigmentation Under Phototherapy. Sophus Bang, Ugesk. f. Læger. **86**:543 (July 17) 1924.

Bang expatiates on recent research which has shown the almost perfect coincidence between the curve representing the bactericidal and hemoglobin-destroying light rays and the curve representing the light rays which induce pigmentation and sunburn in the skin. From entirely different standpoints it has thus been established that the potent segment of the spectrum for all these vital processes lies between the lines 302 and 289, with the maximum at line 297. It has also been established that the precursor of the melanin is dioxyphenylalanin, or dopa as it is called for short. An oxidizing ferment transforms the dopa into melanin. The resulting pigmentation occurs in the same cells in the epithelium in which the light rays induce pigmentation, and the pigmentation does not occur in regions free from dopa, as in vitiligo patches. This dopa is closely allied to epinephrin, and defective functioning of the epinephrin-producing organ, the suprarenals, entails excessive pigmentation. Scraps of skin kept in alcohol grow darker, unless treated with formaldehyd, etc. Scraps of skin from Addison's disease grow almost black. This vital process of pigmentation under the influence of light and of the oxidizing ferment's action suggests the possibility that the dopa is precipitated to render it harmless. This assumption is sustained by Brahn and Schmidtmann's discovery that the melanin from melanotic tumors induces vasoconstriction in animals, but no hyperglycemia, and, after a brief rise, depresses the blood pressure and entails extreme arrhythmia. Bang presents these and other data

to sustain the view that the benefit from tanning in phototherapy may be due to the fact that it eliminates some harmful substance. Certain individuals never tan, especially certain tuberculous subjects, and these seem absolutely refractory to phototherapy in any form.

DOSAGE IN ULTRAVIOLET-RAY TREATMENT. Gassul, Vestnik. Roent. Radiol. **3**: 79, 1924.

Gassul's research on fifty-eight patients proved that the latent stage in the skin erythema from ultraviolet rays was the shortest in exophthalmic goiter (two hours), longer in lupus and pulmonary tuberculosis; and longest in sciatica (over six hours). The latency period was shorter in children from 7 to 14 than in children under 7, or in adults. The erythema was more pronounced with a higher (at least 20 or 30 per cent.) hemoglobin percentage. Fever increased the erythema. Marked erythema caused lowering of the blood pressure. Further experiments suggest the importance of the skin in treatment, especially in tuberculosis.

LUPUS ERYTHEMATOSUS. L. F. HEIMBURGER, China Med. J. **38**:553 (July) 1924.

Heimburger says that in the treatment of his case he used a method which has probably not been used in this condition before, and although the reaction of the lesions to the treatment was marvelous, the ocular complications were severe. Iodoform, 0.065 gm. (grain 1), three times a day after meals, was given for five days, but it had to be discontinued because of the nausea and vomiting it produced. Locally, a lotion of calamine and zinc oxid was used throughout the patient's stay in the hospital. Intravenously, a sterile solution of grape sugar (50 per cent.) was given every other day, beginning with 10 c.c. and increasing by 2 c.c. at each injection. After the first four injections there was no local or general reaction, but after the fifth dose of 25 c.c. (12.5 gm. grape sugar) there was a sharp rise of temperature to 102 F. with nausea and vomiting, and the face became more swollen and tender. The glucose was discontinued, but the temperature still fluctuated between 101 and 103.4 F. The left eye was much swollen, a little pus oozed out between the lids, and there was decided tenderness over the eyeball and at the margin of the orbit, especially at the outer margin. The blood showed a leukocytosis of 18,200, with an increase in the polymorphonuclears to 85 per cent. The blood culture was negative. Hot boric packs were applied to the affected eye hourly, and a solution of argyrol (25 per cent.) was instilled between the lids. In two days the temperature returned to normal and remained so for five days; an injection of 20 c.c. of the grape sugar solution was again given and there was no rise in temperature. On the following two days the temperature was only slightly abnormal (99.4 F.). Afterward the patient complained of a heavy feeling in the left eye; the lids were swollen and edematous. Hot boric packs were applied as before, but there was no improvement either in the ocular symptoms or the temperature. Later it was noticed that the left eyeball protruded slightly, the pupil was widely dilated, and there was no retinal reflex. Enucleation was performed two days later. On the afternoon preceding the enucleation, spasmodic contractions of the left trapezius muscle were noticed. These became more frequent and intense during the night, until by the morning the whole left arm and shoulder were involved. After enucleation of the eyeball the twitchings and contractions gradually involved the left leg,

and finally the right shoulder. The patient was taken home because his condition seemed hopeless. Pathologic examination of the enucleated eyeball showed, microscopically, a perforated ulcer of the cornea with concomitant signs. Immediately behind the eyeball and surrounding the optic nerve was a mass of granulation tissue which showed on microscopic examination increase of connective tissue with a profuse round-cell infiltration.

Society Transactions

AMERICAN DERMATOLOGICAL ASSOCIATION

Annual Meeting, June, 1924

INFORMAL ROUND TABLE DISCUSSION ON DERMATOLOGIC THERAPEUTICS

Tinea of Hands and Feet

Dr. Towle: A man who was a confirmed golfer, had a lesion on his palm that would heal when he did not play golf and open when he did. He had a well defined tinea on his hand. How would you treat his tinea of the hand?

Dr. McBride: With roentgenotherapy and Whitfield's ointment.

Dr. Towle: Do you get a cure?

Dr. McBride: Not always. Patients with tinea are difficult to cure, but we have found that the combination of Whitfield's ointment and roentgenotherapy is the best treatment. We work the dose up gradually.

Dr. Towle: We have found that tar ointment works very well to a certain point, and then, like Whitfield's ointment, it stops.

Dr. Highman: In obstinate cases, I have done two or three different things. I have the patients soak their hands every day in a heterotonic salt solution.

Dr. Towle: I have also been trying out a solution of copper sulphate, and I have been surprised to find how well it works.

Dr. Highman: The solution works very well, and an ointment with 6 per cent. salicylic and 12 per cent. benzoic acid in cold cream is also helpful.

Dr. Towle: That is another method of treatment. If you throw off the epithelium, you necessarily get rid of the tinea.

Dr. Wile: Do you think these cases are chronic because the patients keep on reinfecting themselves? They constantly reinfect themselves from their socks and from bath towels. I think one of the most important things is to break the chain of infection. They should use gauze to dry their feet, and then burn it. I think boiling is not sufficient. The spores are resistant to the ordinary boiling given in the washing. We have proved this out time and time again.

Dr. Towle: Dr. Schamberg read a paper on the chemical affinities of different drugs, and if I remember correctly, the mercurials showed up best in the treatment of tinea.

Dr. Schamberg: In order to destroy the fungus, we must reach the fungus. I have made sections of skin from cases of tinea versicolor and found the fungus lying in the horny layer. I think Whitfield's ointment acts by producing exfoliation. I agree with Dr. Wile that there is frequently reinfection. I had a patient who had a recurrence when he went hunting. He had a pair of hunting socks that he had washed in the ordinary way, and they probably produced the recurrence. With Whitfield's ointment we endeavor to produce repeated exfoliation, and at the same time to avoid too much irritation.

DR. TOWLE: I think 90 per cent. of my cases are associated with some form of sweating. It has always seemed to me that moisture favors the condition.

DR. SCHAMBERG: Moisture undoubtedly favors their growth.

DR. HIGHMAN: How do you determine the strength of the ointment?

DR. SCHAMBERG: Patients vary in their susceptibility, and many patients tolerate 30 or 40 grains (1.9 to 2.6 gm.) of salicylic acid to the ounce. If they do not, we have to weaken it. I think this ointment has the same effect on the skin that roentgenotherapy has on the scalp.

DR. TOWLE: How does the roentgenotherapy work?

DR. MCBRIDE: It makes the skin more susceptible to the Whitfield ointment. We use the red sulphate of mercury together with the benzoic acid. We use this with the roentgenotherapy and do not get a severe reaction.

DR. ORMSBY: Our experience with that is that it attacks in both those situations. The type of tinea that we have our greatest trouble with is the one that is comparatively chronic, with thickened skin between the toes. I know you all have this type of patient. The way we commonly treat that type is with Whitfield's ointment and curettage. We eventually clear up the condition with these means.

As to reinfection, this occurs at times from the toe nails. The parasites remain inactive under the edges of the nails, and from time to time reinfect other portions of the feet from this situation.

Another source of infection is clubs of various sorts. In country and athletic clubs, many men walk to the showers barefooted, and in this way spread infection and also become infected. In certain clubs, we have been trying to sterilize the floors of the showers by frequent scrubbing with strong soap.

In the vesicular type of the disorder, we get the best results with chrysarobin in the strength of 5 to 10 per cent.

DR. BUTLER: Epidermophyton infection shows a variety of clinical aspects according to its localization. Whitfield classified three types: The vesicobullous of the hands and feet, the chronic intertriginous or macerated type between the toes, and the chronic hyperkeratotic type of the plantar and palmar surfaces. C. J. White added to Whitfield's classification the macular, lichenified and nail infections. It is obvious that the same treatment is not suitable in these different varieties. The principle of correct curative treatment consists of getting rid of the diseased epidermis and keeping the regenerated epidermis fungus free. If strong irritants are applied in the acute stage, the patient will be uncomfortable or bedridden; on the other hand, if mild applications are applied in the chronic intertriginous or hyperkeratotic variety, little or no benefit will be derived.

In treating the more common intertriginous variety, we must first get rid of the sodden epidermis. Dr. Ormsby uses a curet for this purpose. I have the patient soak the feet in hot water for a considerable time, following this by friction with a rough towel, which accomplishes the same results. The viable, reddened, regenerating epidermis found under this sodden covering contains the fungi, and they are readily found here rather than in the white sodden covering. Whitfield's ointment may be applied in varying strengths to this reddened base according to the acuteness of the condition. Every fourth day the affected area is cleansed with benzene and painted with a 30 per cent. silver nitrate solution, after which the Whitfield ointment is

reapplied. The silver nitrate is self-limited in penetration, inducing a further shedding of this viable epidermis which, as just stated, contains most of the fungi. I believe the silver application is preferable to the iodin preparations. This treatment should be continued for six weeks after apparent cure. It is important that the patient change shoes every day. C. J. White, who has written considerably on this subject, says it is best to have the patient wear cotton socks. In my opinion, a light woolen stocking is more comfortable and absorbs the excessive perspiration that always accompanies this foot infection.

I should like to say something about the hyperkeratotic type. I believe this condition is brought about by the deep-seated, invisible vesicles under the thick corneal layer, the distended vesicle, which does not rupture, acting like a foreign body combined with the intermittent pressure in walking producing the hyperkeratosis or callositas. My associate, Dr. Odland, and I have cut out this thickened layer in a few cases, and on sectioning it we found the mycelial threads throughout the hyperkeratotic layer. I might add that on microscopic examination in a great number of cases we found only the mycelia — no spores — although a ten day culture shows the spores in abundance.

Regarding reinfection taking place in a few days, as suggested by Dr. Schamberg, I do not believe these are cases of reinfection. The fungi are there all the time, and the process lights up under conditions favorable for its growth, i. e., moisture and heat in the spring and summer, or during the change to woolens in the fall. This is a capricious and at times latent disease, and is not easy to cure when it occurs on the feet.

DR. SUTTON: We have found that individual susceptibility plays an important part in these cases, not only in acquiring the disease, but in the patient's ability to combat it successfully.

A bathroom mat is a common medium of infection. Personally, I believe that the resistance of the patient can be strengthened by means of small doses of foreign protein, such as colon or typhoid vaccine.

Locally, care should be taken to avoid injuring, and thus increasing the susceptibility of the healthy skin to infection. Whitfield's ointment has proved a disappointment to me. I have learned to depend largely on salicylic acid (from 5 to 20 per cent.), and such antiseptics as ammoniated mercury, iodin, potassium permanganate and surgical solution of chlorinated soda (Dakin's solution). Care must be taken to avoid reinfection, and also to protect other members of the patient's family.

DR. HIGHMAN: Dr. Butler's observation about callus is one that I can corroborate. During the last year, I have had ten or fifteen cases of that sort, and I think that in this type not only local treatment is of value but also roentgenotherapy, in the way they are employed in plantar warts.

DR. CHIPMAN: After the use of a keratolytic, such as Whitfield's ointment, it is well to follow up with a strong parasiticide. The combination of phenol, camphor and iodin suggested by Ruggles has been most satisfactory in my experience. I agree thoroughly with what Dr. Butler has said. In the type of case described by Dr. Sutton, the Whitfield ointment seems to me to be particularly indicated. In cases associated with marked thickening, roentgen-ray treatment is sometimes useful as a preliminary.

DR. FOX: In the case of ringworm of the hands and feet, some of the remedies recommended eventually produce results even though the disease is

stubborn. In the case of ringworm of the nails, I have not found any remedy that is even half way satisfactory. I am unable to understand the comparatively high percentage of cures of ringworm of the nails obtained by MacKee with the roentgen ray I have also been very much disappointed with the use of Whitfield's ointment in this condition. At Ellis Island, many immigrants with onychomycosis are willing to submit to avulsion of the nails with subsequent cauterization and destruction of the matrix. Such drastic treatment, however, is not feasible for the average American patient.

DR. SCHAMBERG: My experience has been the same as that of Dr. Fox. I have not been able to influence ringworm of the nails with any of the antiseptics at our command. I recently saw an article which said that the only satisfactory method was to place the patient under anesthesia and effect an avulsion of the nails. It is not necessary to destroy the matrix. I have had patients say that they were willing to do anything to get rid of this infection, and I shall try the removal of the nails next time.

In this connection I would like to mention, although it has no direct bearing, a satisfactory method of removing a part of the nail, particularly when there are warts growing beneath the nail. I recently saw a wart the size of a pea underneath the nail, barely visible at the free edge. I took a thermocautery with a small platinum knife-shaped point, and under local anesthesia (you get a better anesthesia by first placing a rubber band around the root of the digit), I cut through the nail as if it were a piece of paper. One can cut a notch or any sized piece one wishes and can expose anything beneath the nail. I believe that it is thoroughly justifiable to avulse the nails in ringworm and then apply a chrysarobin ointment to the nail bed.

DR. MORROW: I do not know why any one should have such fear of removing the nails. A general anesthetic is not necessary A rubber band around the fingers, procain hypodermically and a pair of hemostatic forceps will remove the nail without any pain. One can remove one or two a day until they are all removed. We have often removed three or four at one treatment. In chronic cases that do not respond to routine therapy, it is our custom to remove the nails, and without exception a new nail will be evolved.

Regarding the application of chrysarobin, which Dr. Ormsby spoke of, I think that drug is the best we have. We do not use it in ointment form because it is so disagreeable. Our routine method is to use 4 per cent. chrysarobin in chloroform, painted on every second day, as a rule, but sometimes only once a week. At other times, we give an evaporating lotion which is soothing, particularly if dermatitis develops. We seldom use ointment; occasionally we use Whitfield's, but I think most ointments are useless. We pull the nail right off. We put half of the hemostatic forceps underneath and separate the nail from the nail base and then put the other half of the forceps on, and the patient does not know when the nail comes off. A moist dressing is applied, and the next day this is changed by us, and after that the patient changes it himself each day, and later uses a dusting powder. We sometimes give patients chrysarobin to use while healing, but I do not know that it is necessary.

DR. GUY: In the type of case Dr. Fox was talking about, I should like to recommend ringing the nail with petrolatum, and after filing the nail down as thin as possible, covering it with a 10 per cent. solution of potassium hydrate. I rarely repeat this. I then use a curet and then Whitfield's ointment, but instead of the usual dose, I use double strength, with an orangewood stick

following the use of the curet. I then use a fractional dose of roentgenotherapy. The results obtained in this way are slow, but I think we usually look for results too soon. It seems to me that when we remember that it requires about five or six months for a nail to grow from the root to the free border, we must persist with any method of treatment for a long time to obtain satisfactory results.

DR. ELLIOTT: We see many of these cases in the South, particularly the acute type that becomes pustular. It is our custom in treating these patients to clip away as much of the vesicles as possible with a pair of scissors, and then soak the affected part in a 1:1,000 potassium permanganate solution which has been acidified with acetic acid. We have noted that in these cases the fluid from the vesicles is highly alkaline; therefore, an acid seems to be indicated. Many of the laymen resort to vinegar soaks with good results. In our experience, roentgenotherapy combined with Whitfield's ointment has been the most satisfactory method in subacute and chronic cases.

DR. TOWLE: Vinegar is a very old remedy, but very effective. I have used vinegar soaks and solutions with good results.

DR. HIGHMAN: In connection with Dr. Fox's remarks about the nails, the very poor cannot afford to go around without their nails, and the very esthetic do not wish to do so. If the patients are instructed to file the affected nail with an emery board and to paint on a 1 per cent. solution of mercuric chlorid—this turns the nails black—and at night use a 10 per cent. yellow oxid of mercury ointment over the edge of the nails and cuticles, and use roentgen rays once a week, within from two to four months these cases will at least be under control. I think I have had fewer failures than successes by following this treatment.

I should like to ask Dr. Morrow whether in using chrysarobin with chloroform he covers the surface with collodion. In my experience, chrysarobin does not dissolve well in chloroform and will brush off like powder.

DR. MORROW: A saturated solution will be apt to do that, but anything under 4 per cent. will not.

DR. FOX: Do you still use 3 per cent. in paronychia?

DR. MORROW: Yes, we still use that.

DR. HIGHMAN: It occurs to me that patients might get conjunctivitis if the fingers are not covered with collodion.

DR. MORROW: We have never had that experience, and we use the solution frequently.

DR. FREEMAN: I have a treatment in this connection for which I feel somewhat indebted to Dr. Butler. When he was in the service, I tried to take care of his practice until I entered the service myself. I found a book in his office by some old German author, in which he stated that in the treatment of deep ringworm infection, regardless of what method was used, the results were all due to the inflammatory reaction produced. We in St. Paul, closely associated with meat packing plants at South St. Paul, see considerable amounts of ringworm infection. In view of what this author stated, I decided to try out carbon dioxid snow in these cases. If any of you have not tried this remedy and see much of this disorder, I would suggest that you give it a trial. You will not have the trouble that you now have with the epidermophyton infections. It is a specific. Cover the surface well for from fifteen to twenty seconds and let the patient go home, and you will be surprised to

see how you can reduce a patch the size of half a grapefruit. You will never have to give an anesthetic, although it is rather painful. I have endeavored to try it out in ringworm of the scalp in children but have not been able to do so, for children will not endure it if there is more than one patch to freeze. In the so-called kerion, Celsi carbon dioxid snow is a specific.

Dr. Cole: This treatment for the same disease is one I learned from Dr. Engman and can heartily recommend. If you put these patients in the hospital and give one injection of milk, 10 c.c. intramuscularly, or one injection of colon bacilli intravenously, the eruption will melt right away.

Pemphigus. The treatment of pemphigus as presented by Dr. Wende was taken up at this point. Because of the complete topic which Dr. Wende presented, his presentation with the discussion will be published separately.

Bromoderma

Dr. Fox: I would like to hear the experience of others with saline injections for the treatment of bromoderma as suggested by Dr. Wile. I have recently had two cases of severe lesions on the legs which serve as a comparison, only one of the patients being treated by the saline method. In the latter case, four injections of normal salt solution were given intravenously, the largest amount being 250 c.c. In this patient, who was irritable and depressed, the treatment seemed to improve the mental condition. The bromoderma, however, did not seem to clear up any quicker than in the other patient who did not receive any injections.

Dr. Wile: I have had many experiences since last year, for we have had a number of cases, and I have noticed an extraordinary phenomenon three times. Immediately following the injection of sodium chlorid, there would be a new group of lesions, and the existing lesions would become much larger, which was the best proof that the chlorid was efficacious in displacing the bromid. If this is kept up, the bromid has to get out somewhere. If it is eliminated too rapidly, I think there is an accentuation of the trouble. If it is once on the skin, we use a mild roentgenotherapy, and this cleans up the condition almost immediately. In not a single case have we failed to clear up the bromid eruption in three weeks or less.

Dr. Guy: I should like to endorse that most enthusiastically. Since Dr. Wile's original contribution, I have had ten cases, one like Dr. Fox's. The patient took a ten cent bottle of Bromo-Seltzer daily for three years. One other case was of particular interest. The patient was a person with an extensive eruption on the legs below the knees. He obtained immediate relief from pain, from which he had suffered for a considerable length of time, within seventy-two hours following the first intravenous injection of saline. Three other cases occurred in infants under 3 years of age, who had been given bromid for whooping cough. These patients were treated, using 10 c.c. of saline intravenously in the jugular vein bi-weekly. I have had no case in which nephritis occurred, only a couple of febrile reactions, and uniformly good results. The usual length of time necessary to clear up a case has been about a month in the most aggravated of cases. The only local treatment was ammoniated mercury and salicylic acid, 0.66 per cent. of each in petrolatum.

Dr. Towle: Were all the lesions of the same type?

DR. WILE: They were typical bromid eruptions. The most striking effect is on the mentality. We have had a number of acute manic psychoses in which we were called over to see a coincident rash, and it turned out to be bromid eruption. The saline brought these patients out of their disturbed mental state immediately. We have not had a failure. The treatment must be successful. If saline will displace bromid in the tissues wherever it has been accumulating, it will be eliminated and far more rapidly than by the ingestion of the normal amount of salts the patient would take.

DR. WISE: I wonder whether it would be effective for phenobarbital rashes.

DR. WILE: If phenobarbital contains bromid, I should think it would be effective.

DR. SWEITZER: Has there been a reaction? I have treated a number of patients, and there have been chills. I do not know whether it was improperly used or what the trouble was.

DR. WILE: I mentioned at the last meeting how we almost killed a patient by giving 500 c.c. instead of 100 c.c. There is some reaction, but I think a certain degree of reaction is favorable.

POISON IVY TREATMENT. (DR. STRICKLER'S PREPARATION.)

DR. COLE: I should like to ask what effect different members have noted with Dr. Strickler's preparation and whether any of you would be interested in trying out a new preparation for poison ivy or rhus. If so, I will see that you get some. I have used it in some cases. It is rather difficult to know the source of the irritation in those cases, but apparently in the cases in which Dr. Strickler's preparation is used striking results are obtained, a definite change being noticeable within twenty-four hours.

DR. SCHAMBERG: I have not injected the rhus toxin into the skin, but I have used the internal treatment and have seen only favorable results. I think that the number of patients treated by me has exceeded one hundred. I find that when I give a prescription to one patient in Philadelphia, ten times that number use it. I believe that the drug acts on the poison of rhus venenata and of poison oak, but whether any other plant dermatitis will be benefited by its use, I am not sure. I should not expect that the primrose poison would be influenced. I have made an extract of the primrose plant but have used it in only one case. I have not seen a single failure in the prophylactic use of rhus. One child who used to spend three months in bed every year on account of rhus poisoning has been completely protected. At times, mothers want another prescriptiton and say that they have lost the bottle. As a result, cases of dermatitis develop. When the drug is used in advance I have failed to see any trouble during the ivy season. I believe that patients may be protected by this desensitization, but the treatment must be continued. I think the protection does not last more than a month after the treatment is established. It seems to me that in view of the fact that we obtain such excellent results from internal administration, there is little necessity of injecting the toxin beneath the skin, because it is rather painful and may produce local reaction. In the treatment of an attack, the dosage may be increased more rapidly than when it is used as a prophylactic.

DR. WILE: I wish to attest the efficacy of Dr. Schamberg's method. He suggested it three years ago. The first case I treated was that of a woman who had had ivy poisoning for twenty-seven years, always in July. Dr. Scham-

berg suggested that rhus was a prophylactic. We started treatment of this woman in June with ascending doses of tincture of rhus, carried her through that summer, and from that time she has never had any trouble. We give 1 dram three times a day. I have treated a number of patients, and have never failed to give relief.

DR. ORMSBY: I have had the same experience as Dr. Schamberg. An early case was that of a physician who had a summer home where there was much poison ivy. She was very fond of her summer home, but every time she went there she had an attack of dermatitis from this plant. I told her about this method of producing immunity, with the result that she has been going to her summer home every year since, and has had no trouble.

DR. MORROW: I do not wish to be a "kill-joy," but three years ago when Dr. Schamberg told me about his experience, I proceeded into the wilds of California and gathered a lot of poison oak and poison ivy and used the preparation on hundreds and hundreds of patients, and many of them had the worst attacks they ever had while taking it. I am still convinced that it has some value and am still using it, but it certainly does not prevent attacks of poisoning in California. I have given it hypodermically and by mouth and have had attacks occur during and after and between treatments, some of them pronounced. This is my personal experience.

DR. SCHAMBERG: Dr. Morrow evidently is dealing with a different variety.

DR. COLE: I should like to mention two instances. I was called to see a child who had had the condition for two weeks. Local preparations had been used without effect, and there was a fine vesicular eruption all over the body. I gave 0.25 c.c. of Dr. Strickler's preparation, and the symptoms were entirely relieved by morning. The child did not have any more local burning. The eruption had not entirely disappeared, but the symptoms had disappeared so far as the subjective sensation was concerned. I have seen several instances like that. Another child who apparently has the same condition will be treated in the same way, but without effect. This may be due to a different preparation. We keep a preparation in the hospital and in our office every summer, and find that it works often enough to make it well worth trying out.

DR. WISE: I wish to report uniformly good results from the treatment, but I have no idea what results would be obtained from the prophylactic injection. I have been using the product of the American Pharmacal Company.

DR. HIGHMAN: A young English woman who had an attack of rhus poisoning for which the family physician had given injections of Strickler's preparation developed a persistent vesicular dermatitis which lasted during the summer and into the winter. She was brought to me by a second internist whom she had consulted, having become displeased with the first internist, to see what could be done for her eruption. She said it was like the original eruption, which she claimed followed exposure to rhus. I do not known whether it was rhus poisoning or not. I wondered whether if there was sensitization, a negative phase could have been developed.

DR. CHIPMAN: I think you will occasionally find that this trouble is due to some other irritant, although the patients think it is due to *Rhus toxicodendron*. They may get the same clinical reaction from other irritants, such as the primrose.

DR. SCHAMBERG: I believe that in rare instances the dose which is ordinarily used to protect may actually produce an eruption. I have seen one case in

which an internal dose has evoked an eruption, and likewise an instance in which a severe vesicular outbreak was produced at the site of two injections. The conditions are analogous to those in which attempts to desensitize a patient with proteins are made. The average dose of rhus that is given is innocuous for the average person. I think Dr. Highman is correct in his assumption that in rare instances the usual dose may be too large.

Nevus

Dr. Butler: I brought up the case of the port wine mark, hoping that it would stimulate some discussion as to treatment. We have heard the Kromayer lamp extolled for ten years by a few who have claimed wonderful results. I have not been able to get these results, and I should like to hear from those who have, just how they get them. I have succeeded in partially blanching these cases in three instances, using the Kromayer lamp, but the treatment was hardly worth while for the slight improvement and time expended.

Dr. Fox: It has been my experience to have seen only one case, that of Dr. Fred Wise, in which a perfect result has been attained by the use of the Kromayer lamp. I have seen other cases in which poor or at least indifferent results followed this method of treatment. I feel discouraged about the treatment of flat vascular nevi, with the exception of very small lesions. I feel that a nevus, which every one recognizes as a harmless condition, is preferable to scarring which might often be the cause of embarrassing remarks to the possessor.

Dr. Wise: I and my associate, Dr. J. J. Eller, are treating between fifteen and twenty cases of nevus flammeus (port wine mark) with the Kromayer light, using pressure. In two cases in which the quartz glass could be pressed firmly against the bone, cures have resulted; but in general the results have not been promising thus far, although most of the cases are showing improvement even at the present time. The radium treatment of elevated angiomas gives perfect results.

Dr. Towle: A month ago, a child of 6 or 7 years was brought in, showing an excellent result from treatment.

Dr. Wende: I should like to suggest the use of radium in small sized flat nevi. Of course, it is impracticable in cases like those presented by Dr. Butler. The method is to use a half strength plaque for about four hours with 1 mm. of aluminum as a filter. This does not produce as much damage or telangectasia as usually occurs when a filter of less strength is used.

Dr. Wise: In the treatment of elevated angiomas, I think that radium gives far better results than carbon dioxid snow or any other form of treatment.

Dr. Foerster: My experience with port wine nevi has been like that of Dr. Wise. I have had a few good results with the Kromayer lamp treatment in children who managed to hold still long enough to take the treatment over the necessary length of time to produce a severe reaction. We can always make the color lighter, but I think we cannot do more in most instances. I think the best result I ever saw was in a young lad who had a nevus that covered most of his face. This was treated with radium at the Mayo Clinic, but only half had been treated when I saw the patient. The result was perfect; there was no atrophy, telangiectasia or pigmentation. The boy was 20 years old, and I saw him about eight months after radium therapy had been used.

DR. FOX: Wickham, of Paris, has reported some excellent results.

DR. MORROW: I think those are principally cases of strawberry nevus.

Answering Dr. Wende, there is a tendency throughout the country at present to use full strength radium plaques, with no filter except rubber, exposing for ten minutes, and repeating the treatment in four weeks. We have had little experience with that method. All of our patients have been treated with filters, but not in the manner spoken of by Dr. Wende, for instead of using 1 mm. of aluminum, we use 0.1 mm., occasionally 0.2 mm., and leave the applicator on for thirty-five or forty minutes, repeating the treatment in four weeks.

I should like to ask Dr. Wise whether he has ever had any success in removing port wine marks without producing a blister.

DR. WISE: No, I always have to produce a blister to get any result.

DR. MORROW: We have never had satisfactory results with the Kromayer lamp without producing a blister. The parents are never satisfied with the improvement; they want a cure or nothing.

DR. HIGHMAN: One cosmetic defect replacing another is not a cure, and I do not think this treatment should be given unless we can obtain a cure.

DR. WENDE: I have tried all stengths of radium with just a rubber dam filter. I think that in using 1 mm. of aluminum most of the soft rays that do the damage are removed. I would suggest that this be tried.

DR. IRVINE: I have seen Dr. Simpson's plan of treatment. He uses large applicators, about one-eighth strength, and, as I recall, he exposes only enough to produce slight desquamation. He bleaches the skin to normal color, using the treatment over a long period. I tried it in the case of the boy I showed today, and there was some lightening of the color.

DR. ORMSBY: Does Dr. Wende expose the patient for four hours in one treatment?

DR. WENDE: I do.

TREATMENT OF TATTOO MARKS

DR. SCHAMBERG: I asked the Chairman to present the subject of treatment of tattoo marks for a definite reason. I was approached by a Doctor of Philosophy in a university who said he had brought over from Europe a completely successful method of treatment of tattoo marks. I received the impression that he wished to keep the method secret and to use it to increase his meager salary. I was interested in seeing what the results were, in view of what he showed me. He exhibited to me a piece of skin that looked like parchment, and in the skin I saw the original tattoo marks in the original color, but perfectly dry. Just then I received a letter from a lady who wished to have tattoo marks removed. I made an appointment with this man, and told her he was not a physician but that he had a method of treatment that I knew nothing about, but that I should like to see the result if she decided to try it. I did not see the method used but saw the result. Within three weeks, the operator removed a large eschar of a bird with outstretched wings, taking off the whole mark, with very little pain to the patient. I thought perhaps he had used trichloracetic acid and recently tried this, but without satisfactory result. I thought perhaps some of you had heard of the method, or something of this kind, or perhaps knew what acid might act in this way. I am

quite sure some chemical substance was used, probably an acid. It removes the entire eschar, with little scarring. In the case I refer to, there was only one treatment over the whole mark, but a few little points required a second application.

DR. MARKLEY: A method which I have employed, which is not original with me, may have some similarity to the method of which Dr. Schamberg has just spoken, as it seems to be something like tanning. A saturated watery solution of tannic acid is poured over the surface involved, and using an ordinary surgical needle, the acid is tattooed accurately into the tattoo mark only. Then a silver nitrate pencil is rubbed over it. This will produce a dry black slough which separates within a week or two, leaving a white scar, devoid of color.

PITTSBURGH DERMATOLOGICAL SOCIETY

Regular Monthly Meeting, Nov. 20, 1924

HERBERT G. WERTHEIMER, M.D., *Presiding*

KERATOSIS PILARIS. Presented by DR. WILLARD.

N. C., a girl, aged 4 years, had a rash involving the entire outer aspects of the limbs. There were closely scattered discrete pin point sized red papules at the follicular openings. Some follicles were capped by a horny plug, the surface feeling not unlike a nutmeg grater. Her father and one of her half sisters are similarly affected. At birth she weighed 17 pounds (7.7 kg.), and had supernumerary fingers and toes.

DISCUSSION

DR. GUY said that the association of a variety of ichthyosis with such an evident endocrine dyscrasia was worth while. Repeated such association would mean more perhaps in attempting exact explanation of the ichthyosis group. He asked whether there was any evidence of consanguinity.

DR. HOLLANDER called attention to the cases which he reported last year under the group of dyspituitary syndrome. All his cases showed adiposity, dry skin, follicular plugging and hypertrichosis. All these can be seen in the case in question. He classified the patient as one of the dystrophia adiposa genitalis type, and asked the presenter to have a roentgenogram made of the sella turcica in order to study the sugar curve and if possible to determine basal metabolism.

DR. CRAWFORD agreed that the case was one of keratosis pilaris of an ichthyotic type due to an endocrine dyscrasia.

DR WILLARD said that no consanguinity existed in the patient.

XANTHOMA TUBEROSUM MULTIPLEX. Presented by DRS. GUY and JACOB.

A man, aged 30, presented approximately split pea sized, yellowish-red, firm, grouped lesions on the elbows and distinctly yellowish linear infiltrations on the flexure surfaces over the metacarpal joints. The condition was of three month's duration. The patient had recently put on weight. He was a prodigious consumer of sweets. Blood chemistry revealed a well marked increase in the blood sugar, but urinary examinations were negative.

DISCUSSION

DR. HOLLANDER said that the case was interesting from two points of view: first, because of the presence of the linear type of infiltration in the flexures of the metacarpals. Had he seen that alone without the lesions on the elbows, he could have not made the diagnosis. Second, the history which revealed that the patient was working in a confectionery place and was very fond of sweets, considered with the fact that he had hyperglycemia although he had no glycosuria, tended to point to the type of treatment which should be instituted, i. e., a low carbohydrate diet. He spoke of the result obtained with such a diet in a case presented by Dr. Cole of Cleveland.

DR. WERTHEIMER suggested the use of palladium.

DR. GUY said that the patient was placed on a low carbohydrate diet and also a diet low in cholesterin content. The case was presented for therapeutic suggestions. We would be glad to use palladium as suggested by Dr. Wertheimer.

CHANCRE OF THE TONSIL. Presented by DRS. GUY and JACOB.

N. C., a woman, aged 24, a Croatian, had had a sore throat for five weeks. Before presentation, the patient had received three injections of arsphenamin and two of mercury. At the time of presentation, she had an indurated scar involving principally the anterior pillar of the left tonsil and a marked one-sided cervical adenopathy. The Wassermann test was 4 plus; the source of infection was unknown.

DISCUSSION

DR. WERTHEIMER remarked that with a lesion either on the lip or tonsil and with unilateral enlargement of the glands on the side, one should always be suspicious of a primary infection of syphilis.

TRICHO-EPITHELIOMA. Presented by DR. CRAWFORD.

N. H., a woman, aged 45, a housewife, for the past four years had had a constantly recurring and disappearing eruption of variously sized, pearly, globular, semitranslucent tumors which looked like cysts, varying from 2 to 6 mm. in diameter, on her face about the eyes, nose and mouth. There were no subjective symptoms such as pain or itching. The lesions would appear in a few days or weeks, remain for an indefinite number of weeks and eventually disappear. Some of the larger tumors presented a fine capillary network at their bases. There was no family history of a like condition. She had refused a biopsy.

DISCUSSION

DR. PHILLIPS asked whether the lesions would disappear spontaneously if the condition presented was tricho-epithelioma. In cases previously observed by him no such history could be obtained.

DR. WERTHEIMER said that a hydrocystoma should be considered on account of the disappearing and reappearing character of the lesions.

DR. CRAWFORD said that this was the interesting phase of the condition.

GLOSSITIS AREATA EXFOLIATIVA. Presented by DR. CRAWFORD.

A. B., a woman, aged 43, for six months past had had constantly recurring irregular areas of epithelial denudation on the dorsum of the tongue. The areas

when fully developed were dull red and slightly irregular in outline. The developed lesions burned and pained moderately. After several days, they would gradually disappear only to recur after a period of ten days or so, the lesions developing about twice a month.

DISCUSSION

DR. PHILLIPS said that he thought the case was very interesting. From the standpoint of treatment, he said, nothing seems to have direct influence on the condition. He quoted Dr. Howard Fox, who in his summary of the use of the roentgen ray in diseases of the skin advocated the use of it in this condition. However, the lesions reappeared on the tongue in seven years.

DR. HOLLANDER said that in cases of this type a thorough study of the blood should be made for the exclusion of primary (pernicious) or secondary anemia.

DR. CRAWFORD said that the blood had been studied, with negative results. No focus of infection was found, although he thought that the condition was due to some intestinal infection. Roentgen-ray treatment of the tongue would be tried.

A CASE FOR DIAGNOSIS. Presented by DR. WERTHEIMER.

A. L., a woman, aged 57, a widow, for the past three years, on the dorsal surfaces of both hands had presented red, circinate lesions about 3 inches (7.6 cm.) in diameter. The border was about an eighth to a fourth inch (3.1 to 6.3 mm.) wide, raised and sharply defined, while the inner portion faded somewhat toward the center; there was no scaling, but slight infiltration. The patient gave a history of having taken phenolphthalein.

DISCUSSION

DR. PHILLIPS offered the diagnosis of granuloma annulare.

DR. GUY offered a diagnosis of ringed eruptive rash as appears in English reports from time to time. These were usually cases to which we would apply the name of granuloma annulare. The lack of any central atrophy was against the diagnosis. A biopsy was indicated.

DR. CRAWFORD said he thought it was a fixed eruption probably due to drugs.

URTICARIA PIGMENTOSA. Presented by DR. WERTHEIMER.

H. Y., a woman, aged 45, for the past seventeen years had presented an eruption scattered over the body—including the face at the angle of the jaw—pea-sized reddish macules and nodules, transversed by dilated capillaries. Here and there were atrophic white spots, probably the site of former lesions. In some places the lesions followed the lines of cleavage. On slapping, the lesions became urticarial, disappearing in a short time. There was no itching. Repeated blood Wassermann tests were negative.

DR. PHILLIPS asked the presenter to try roentgen-ray therapy on one arm and report the result.

DR. JACOB said he thought that the lesions should disappear under roentgen-ray therapy.

SYPHILIS. Presented by DR. BARR.

J. H., a man, white, aged 42, a trolley car repairman, one week before presentation, on the center of the forehead, had a round, dime-sized, elevated,

crusted, ulcerated, sharply marginated lesion, very hard at the margin, which was of five weeks' duration. It began as a water blister, which he struck on the bumper of a car while at work in a pit, causing a crusted ulcer to appear, which gradually grew larger and harder. From two to three weeks before presentation, the submaxillary and parotid lymph nodes began to become hard and palpable. The largest is now about the size of a hen's egg. A local roentgenologist made roentgenograms of the patient's teeth, and found no apical infections. A complete, differential blood count, on November 14, revealed: red blood cells, 5,824,000; white blood cells, 10,600; hemoglobin, 90 per cent.; color index, 0.7; polymorphonuclears, 78 per cent.; small lymphocytes, 16 per cent.; large monoculears, 3 per cent.; transitionals, 3 per cent. The only treatment he had received from his physician was scarlet red ointment and boric acid ointment.

DISCUSSION

Dr. Phillips said he thought the case well worth seeing.

Dr. Guy said the rapidity of development and the adenopathy out of proportion to the appearance of the early lesion should always suggest syphilis in lesions of the head. The dark-field examination would settle the diagnosis before the Wassermann test becomes positive if made sufficiently early.

S. Lester Hollander, Secretary.

DETROIT DERMATOLOGICAL SOCIETY

Regular Meeting, Nov. 25, 1924

U. J. Wile, M.D., *Presiding*

A Case for Diagnosis. Bromoderma? Presented by Dr. Van Rhee.

A female negro baby, aged 9 months, presented vesiculopustular and vegetating lesions on the face and extremities. There was slight crusting and oozing. The Wassermann reaction of the blood was negative.

DISCUSSION

Dr. Varney said that this was a most extensive case of dermatitis vegetans.

Dr. Parkhurst said that, although the history was vague, he favored a diagnosis of bromoderma.

Dr. Perkins said that the child had been given medicine for convulsions for two weeks before the eruption had appeared.

Dr. Wile suggested that the question might be settled by testing the urine for bromids, and Dr. Varney emphasized the importance of such a procedure in verifying the diagnosis.

Extragenital Chancroidal Infection? Presented by Dr. Parkhurst.

Mrs. V. M., aged 28, a housewife, had had a sluggish ulceration of the right side of the nose for nearly nine weeks. She stated that just prior to its appearance there had been rooming at her house a young woman supposedly infected with chancroids (which diagnosis has been confirmed by the attending physician), and she suspected that a contaminated towel might accidentally have come into contact with her nose. There was a medium coin-sized ragged

ulcer on the right side of the bridge of the nose, of moderate depth, with a fairly adherent brownish central crust and a narrow erythematous margin, at the upper part of which there was a minute abrasion. There was slight infiltration and considerable tenderness. When first seen, on November 4, the ulcer had been a trifle smaller, considerably deeper, and had presented less marginal inflammation. Cultures made after the method of Teague had twice failed to reveal the presence of Ducrey bacilli, a gram-positive diplococcus having been found on both occasions. Repeated dark-field and Wassermann examinations had been negative (and have since remained negative).

DISCUSSION

DR. TROXELL said that he had never seen an extragenital chancroid, and would make no positive diagnosis.

DR. STEVENS said that he had found some enlarged cervical lymph nodes, and would favor a diagnosis of syphilitic chancre.

DRS. BARTHOLOMEW and VALADE considered it a probable syphilitic chancre.

DR. WILE said that he had seen a case of chancroidal infection occurring at the corner of the mouth, in which the organisms had been found, and which had been cured by irrigations of surgical solution of chlorinated soda (Dakin's solution), followed later by applications of iodoform.

DR. BREITENBACH recommended the use of iodoform and glycerin, equal parts, for the treatment of chancroidal infection.

CHANCRE OF THE TONGUE? Presented by DR. VAN RHEE.

F. M., a man, aged 65, presented a saucer-shaped ulcer on the right outer margin of the tongue, about 1 inch from the tip. The border was sharply defined and the base smooth and grayish. It was of thirteen days' duration. The dark-field and blood Wassermann examinations were negative, and no lymph nodes were palpable. According to the history, there had been a chancre twenty-five years previously.

DISCUSSION

DR. BIDDLE said that, clinically, this might be a chancre, but that it might be an epithelioma.

DR. WILE said that, although the history apparently excluded the possibility of a diagnosis of chancre, nevertheless he felt that the lesion was a chancre, and urged that another dark-field examination be made.

DR. VAN RHEE said that 0.45 gm. of neo-arsphenamin had been administered, and that some improvement had followed this.

NEURODERMITE. Presented by DR. TROXELL.

G. D., aged 16, a girl, a student, presented slightly elevated, oval, sharply defined patches about 3 to 5 cm. in diameter, on the legs and neck. The lesions were scaling and slightly pruritic. The patches on the legs were of four years' duration, while that on the neck had been present one year.

DISCUSSION

DR. VARNEY said that the patch at the nape of the neck was in one of the usual locations of neurodermite.

Dr. Wile said that there were grouped patches on the arm and leg such as Brocq had called parakeratosis psoriasiformis.

Psoriasis. Presented by Dr. Van Rhee.

A. J., a man, aged 31, presented mildly inflammatory maculopapular lesions, thinly covered with white silvery scales, on both legs, one on the abdomen and a few on the thighs. The patient had first noticed the eruption at the age of 15, the outbreaks being more severe in winter, and mildly pruritic.

DISCUSSION

Dr. Jamieson said that although the few lesions were atypical, a diagnosis of psoriasis could be made from the history.

A Case for Diagnosis. Presented by Drs. Schiller and Perkins.

H. A., a man, aged 26, a truck driver, complained of an eruption of two weeks' duration, which had appeared shortly after he had had conjugal relations with his wife. There was no history of external medication nor of venereal infection, and the Wassermann reaction was negative. On the lower part of the abdomen and the genitocrural region were erythematosquamous patches and papulopustular lesions, with many excoriations.

DISCUSSION

Dr. Parkhurst said that there were several small coin-sized, sharply outlined erythematosquamous patches, which, with the pustules, suggested a diagnosis of dermatophytosis with a secondary pyogenic infection.

Dr. Stevens agreed with the diagnosis of dermatophytosis.

Dr. Wile said that the papules were discrete and nummular, but not syphilitic.

Dr. Jamieson agreed with a diagnosis of dermatophytosis.

Dr. Perkins said that the scrotum looked as though it had been bathed with some strong antiseptic solution, he did not agree with a diagnosis of dermatophytosis.

Pseudopelade. Presented by Dr. Troxell.

S. F., a Jewish girl, aged 10 years, presented irregular circumscribed areas of alopecia over the parietal region of the scalp, the onset having occurred five years previously, following a diphtheric infection of the throat. The first area had been about 1 cm. in diameter, and the condition had progressed slowly but steadily. Some of the smaller areas had joined, forming larger ones. The scalp in these areas was definitely atrophic, but at no time had there been any acute inflammatory reaction or ulceration. Pityriasis capitis had always been present. Subjective symptoms were absent, cultures had been negative, and the Wassermann reaction was negative.

Prickle Cell Epithelioma of the Lip and Gumma of the Tongue. Presented by Drs. Jamieson and Valade.

F. C., a man, aged 55, a native of Malta, married, had two children, living and well; two children had died. He denied having had a venereal disease.

Four years previously he had had lupus (?), which had been treated in Malta with roentgen rays for three or four months and with high frequency applications for from six to eight months; there remained peculiarly ridged and furrowed atrophic and reddened scars on the face and forehead, more closely resembling the scars of syphilis than those of lupus vulgaris. About seven or eight months previously, he had developed a small papule on the chin about 2 cm. below the mucocutaneous border. This was cut and irritated frequently during the next few months, until an ulcer appeared, which was typically epitheliomatous. The tumor was treated by roentgen rays and fulguration, and the regional lymph nodes were irradiated. He also presented a glossitis with fissures and a lingual ulcer. The Wassermann reaction was strongly positive. The glossitis improved after the administration of antisyphilitic treatment.

DISCUSSION

DR. STEVENS said that he had seen cases of epithelioma of the lip remain apparently cured for some time after treatment by irradiation and electrocoagulation.

DR. WILE said that he had never seen complete recovery in any case of squamous cell epithelioma of the lip.

A CASE FOR DIAGNOSIS. Presented by DR. JAMIESON.

Mrs. H. W., aged 65, with an apparently irrelevant past history, presented a condition of five months' duration, its onset having followed a bite on the neck by a fly which had supposedly been feeding on diseased fish. The lesions began as small furuncles which followed an indolent course, with a slough from one-half to one inch in diameter, thin undermined edges, scanty discharge, and a wide inflammatory border; healing was slow, covering a period of from thirty to sixty days. There were always at least one or two lesions present, and there had been about fifteen on the abdomen.

On the abdomen there was an irregularly elliptical erythematous area about 4 inches (10 cm.) long and considerably infiltrated, with a central ulcer about 1 inch (2.54 cm.) wide and 2 inches (5 cm.) in length, the base being soft and gelatinous and the edges thin and undermined; there was a scanty discharge and a thin crust. Examination of the smears revealed the presence of a variety of bacteria: staphylococci, streptococci, pneumococci, diplococci and diphtheroid bacilli. There had been no opportunity for a biopsy. Repeated Wassermann reactions had been negative.

DISCUSSION

DR. VALADE said that the appearance of the lesions suggested the possibility of dermatitis artefacta.

DRS. DOTY, VARNEY and WILE agreed with a diagnosis of dermatitis artefacta.

A CASE FOR DIAGNOSIS. Presented by DRS. SCHILLER and PERKINS.

P. S., a boy, aged 14, suffering with cardiac deficiency, presented an eruption of erythematous papules and wheals, which had started on the scrotum and spread to the penis, buttocks and trunk. There were a few lesions on the face.

DISCUSSION

DR. BARTHOLOMEW said that he would consider this a toxic erythema.

DR. WILE said that he had noticed the odor of tar about the patient, and wondered whether this could have been a factor.

PROGRESSIVE PIGMENTARY DERMATOSIS (SCHAMBERG). Presented by DR. PARKHURST.

DR. J. W., a dentist, aged 50, American born, had had an eruption on the legs for about a year and a half. On the anterior aspect of the right shin in its middle third, there was a fairly sharply outlined, palm-sized patch, and symmetrically placed on the left leg there was a small area, less well defined. In these areas the skin was yellowish brown, ranging to reddish in places, and there was a diffuse sprinkling of "cayenne-pepper spots." The skin of these areas had a slightly atrophic appearance, and there was a partial alopecia. In both popliteal regions, there were coin-sized patches of the cayenne-pepper-like spots, with less intense pigmentation and no apparent atrophy. There was some pruritus at times. No varicose veins had been found. The patient had been under observation only ten days, but it had been noted that old lesions were fading and new ones appearing constantly.

DISCUSSION

DR. STEVENS said that he had presented an example of this condition one year previously; the involvement in the present case was more diffuse.

DR. BARTHOLOMEW said that a patient with a typical case had been under his care. After a day's exposure to sunlight, pigmented areas had appeared on the arms.

EXTENSIVE PSORIASIS AND SEBORRHEIC DERMATITIS. Presented by DR. VAN RHEE.

D. B., a girl, aged 12 years, presented slightly inflammatory erythematous patches on the scalp, covered with greasy yellow scales. On the chest, back and extremities were many similar lesions, with silvery scales. The onset of both conditions had occurred six weeks previously.

MACULOPAPULAR SYPHILID. Presented by DR. TROXELL.

A. F., aged 32, a housewife, born in England, had had a sore throat two weeks before presentation. The eruption had first appeared two months previously, and involved the chest, arms, neck and face. There was general lymphadenopathy.

CORYMBRIFORM SYPHILID. Presented by DR. VAN RHEE.

A. I., aged 28, a negro laborer, presented flat crusted multiform lesions on the face and deep-seated papules on the palms and soles. There had been a penile sore about eight weeks previously, and the eruption had appeared about three weeks previously.

SYPHILITIC GUMMA. Presented by DR. VAN RHEE.

A. E., aged 33, a truck driver, presented a medium coin-sized ulcer near the left internal malleolus; it had appeared four weeks previously, after a slight injury. There had been a penile sore in 1917.

SYPHILITIC GUMMA. Presented by DRS. SCHILLER and PERKINS.

Mrs. L. W., aged 36, presented a large irregular ulcer on the right ankle, its duration being three years; the base was dirty and grayish. The roentgenologic report was as follows: "There is appositional thickening of the

periosteum in different places along the lower third of the fibula, one of the thickened areas standing out very prominently on the lateral surface. This suggests a diagnosis of syphilis with gummas of the lower third of the fibula." The Wassermann reaction was strongly positive, and there had been immediate improvement under antisyphilitic treatment.

FAMILIAL SYPHILIS. Presented by DRS. SCHILLER and PERKINS.

The father, S. K., aged 43, denied venereal infection and was apparently negative to examination, excepting a bilateral inguinal lymphadenitis. His wife, L. K., aged 32, also denied venereal disease, and her physical findings were apparently normal, but the Wassermann reaction of her blood was positive and there had been one miscarriage. E. K., the oldest child, a girl, presented chorioretinitis and notched upper central incisor teeth, with a positive Wassermann reaction; there was a discharge from both ears. I. K., a daughter, aged 8 years, also had two discharging ears, and bilateral cervical and inguinal lymphadenitis. Both parietal bossae were prominent, and the teeth were irregular several being absent. The Wassermann reaction was positive. A. K., a daughter, aged 6 years, also had a bilateral aural discharge. Her parietal bossae were prominent, the upper central incisors were broad and irregularly notched, and the inguinal lymph nodes were shotlike. The chest was of the rachitic type, and there had been incontinence of urine. O. K., a son, aged 4 years, had always had incontinence of urine. The parietal bossae were prominent; there was a slight rhinitis, and the teeth were of good appearance. The Wassermann reactions of the last two children were negative.

H. J. PARKHURST, Reporter.

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